

PO760

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PO760 FOR THE INSTALLER

INTRODUCTION

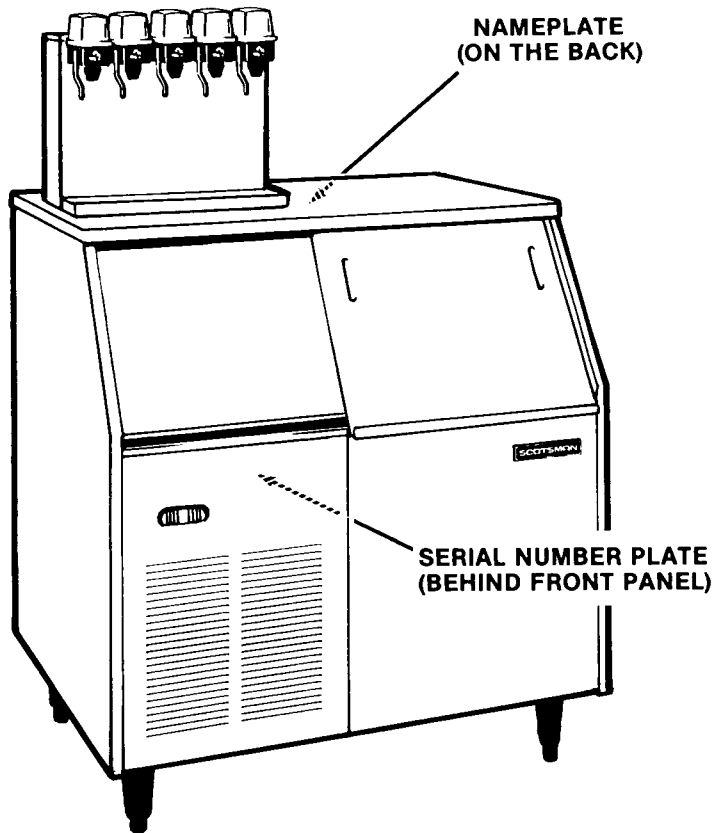
This manual provides the specifications and the step-by-step procedures for the installation, start-up, operation, maintenance and cleaning of the SCOTSMAN Model PO760 Automatic Nugget Icemaker/Drink Dispensers.

The Model PO760 Icemaker/Dispensers are quality designed, engineered and constructed, and thoroughly tested icemaking and post-mix dispensing systems, providing the utmost in flexibility to fit the needs of a particular user.

A seven circuit cold plate, designated and constructed as the integral bottom of the Bin, allows use of five syrup flavors, plus cold sweet water and carbonated water circuits.

A complete built-in carbonated water system, includes a carbonator pump and carbonator tank with line connections to the cold plate.

All internal lines are connected prior to shipment from the factory. Six flexible tube assemblies are provided, five for connections to five syrup tanks and one for connections to the CO₂ tank.



NAME PLATE

MODEL NUMBER				
SERIAL NUMBER				
A.C. SUPPLY VOLTAGE				
MINIMUM CIRCUIT AMPACITY	WIRES			
MAXIMUM FUSE SIZE *	HERTZ			
HEATER WATTS	PHASE			
REFRIGERANT	CHARGE	OZ.		
MOTORS	VOLTS	R.L.A./F.L.A.	W/H.P.	L.R.A.
COMPRESSOR				
FAN				
DRIVE				
OTHER				
DESIGN PRESSURE		LOW		HIGH
* OR HACR TYPE CIRCUIT BREAKER				



SCOTSMAN A HOUSEHOLD
INTERNATIONAL COMPANY

ALBERT LEA, MINNESOTA U.S.A.

SERIAL NUMBER PLATE

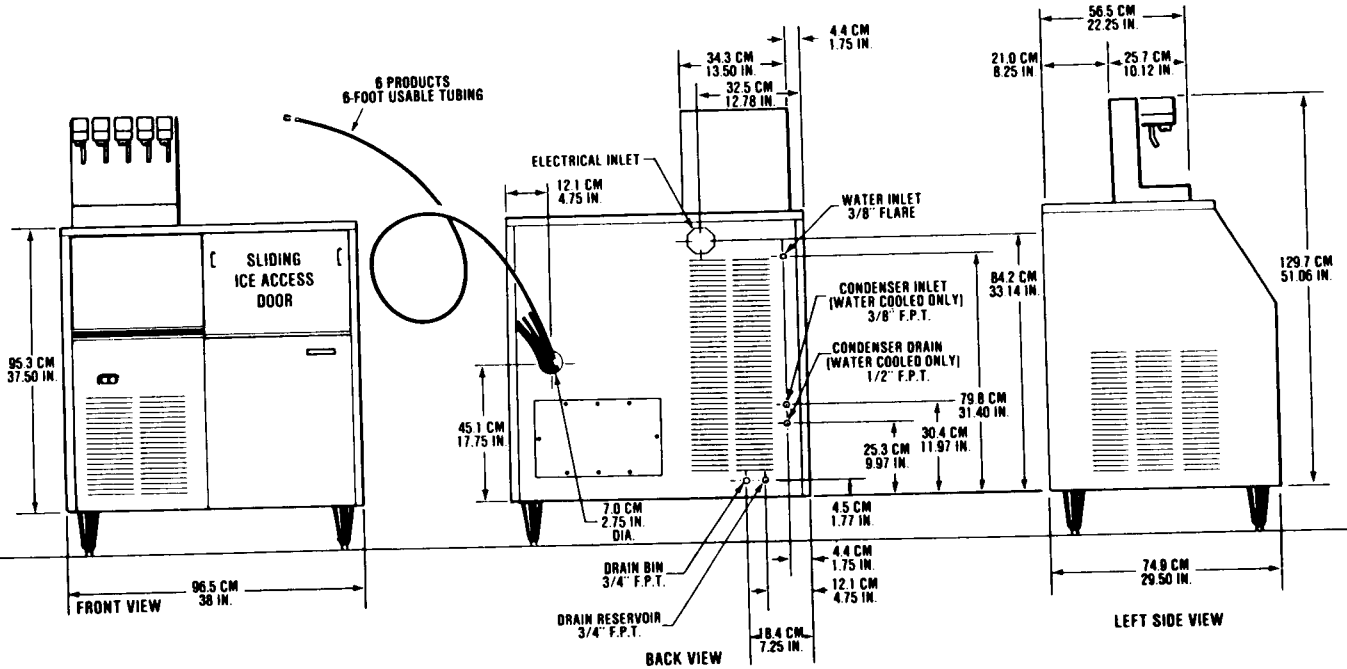
MODEL NUMBER		
SERIAL NUMBER		
VOLTS/HERTZ/PHASE		
MAXIMUM FUSE SIZE		
REFRIGERANT	CHARGE	OZ.



This icemaker has been engineered to our own rigid safety and performance standards. The National Sanitation Foundation (NSF) seal, signifies that it is listed with NSF and that it complies with the materials and construction standards of NSF. In addition, the Underwriters Laboratories, Inc., (UL) Listing Mark and the Canadian Standards Association (CSA) Monogram, both signify that its construction and design have been inspected and tested by them. NSF, UL and CSA inspectors also periodically examine production icemakers at the factory, to assure continued compliance.

To retain the safety and performance built into this icemaker, it is important that installation and maintenance be conducted in the manner outlined in this manual.

PO760 SYSTEM SPECIFICATIONS



We reserve the right to make product improvements at any time. Specifications and design are subject to change without notice.

SPECIFICATIONS

Model Number	(Height - w/o Legs) (or Tower) Dimensions H" x W" x D"	Bin Cap.	Cube Size	Cond. Unit	Finish **	Basic Electrical	Comp. H.P.	No. of Wires	Min. Circuit Ampa- city †	* Max. Fuse Size	Ship. Wt. lbs./kg.
PO760AE-1C	37½ x 38 x 29½	255 lbs.	Nugget	Air	ES	115/60/1	3/4	2	24.3	30	425/193
PO760WE-1C	37½ x 38 x 29½	255 lbs.	Nugget	Water	ES	115/60/1	3/4	2	21.0	25	425/195

**ES Sandalwood high-gloss, baked enamel finish on leathergrain embossed steel.
†Use this value to determine minimum wire size as per National Electric Code Standards.

* Or HACR type circuit breakers.

IMPORTANT OPERATING REQUIREMENTS

	MINIMUM	MAXIMUM
Air Temperatures	50°F (10.0°C)	100°F (38°C)
Water Temperatures	40°F (4.4°C)	100°F (38°C)
Water Pressures	20 lbs. gauge	120 lbs. gauge

Electrical Voltage Variations

Voltage rating specified on nameplate	-10%	10%
---------------------------------------	------	-----

Extended periods of operation exceeding these limitations constitutes misuse under the terms of Scotsman Manufacturer's Limited Warranty, resulting in a loss of warranty coverage.

PO760's have been manufactured in "A" and "C" Models (as in model PO760AE-1A vs. PO760AE-1C.) This manual is primarily intended for the "C" model, but applies as well to the prior models.

OPTIONAL PANEL KITS

SPKPR760 stainless steel panel kit for use with PO760.

SEE NAMEPLATE, for electrical and refrigeration specifications.

NAMEPLATE is located on the rear panel.

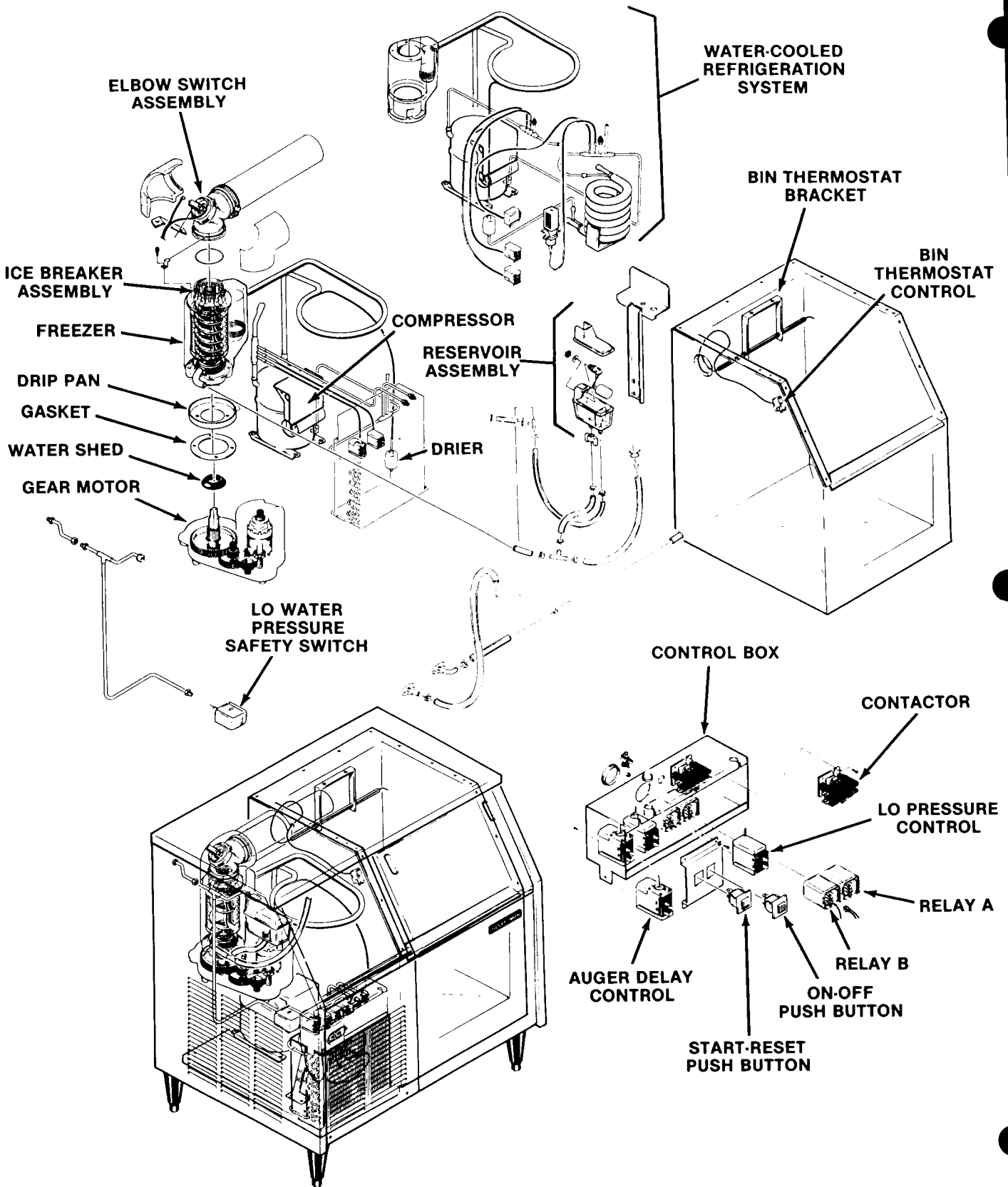
Remove left panel to locate Model/Serial Number plate, on the top of the control box.

OPTIONAL DRINK TOWERS

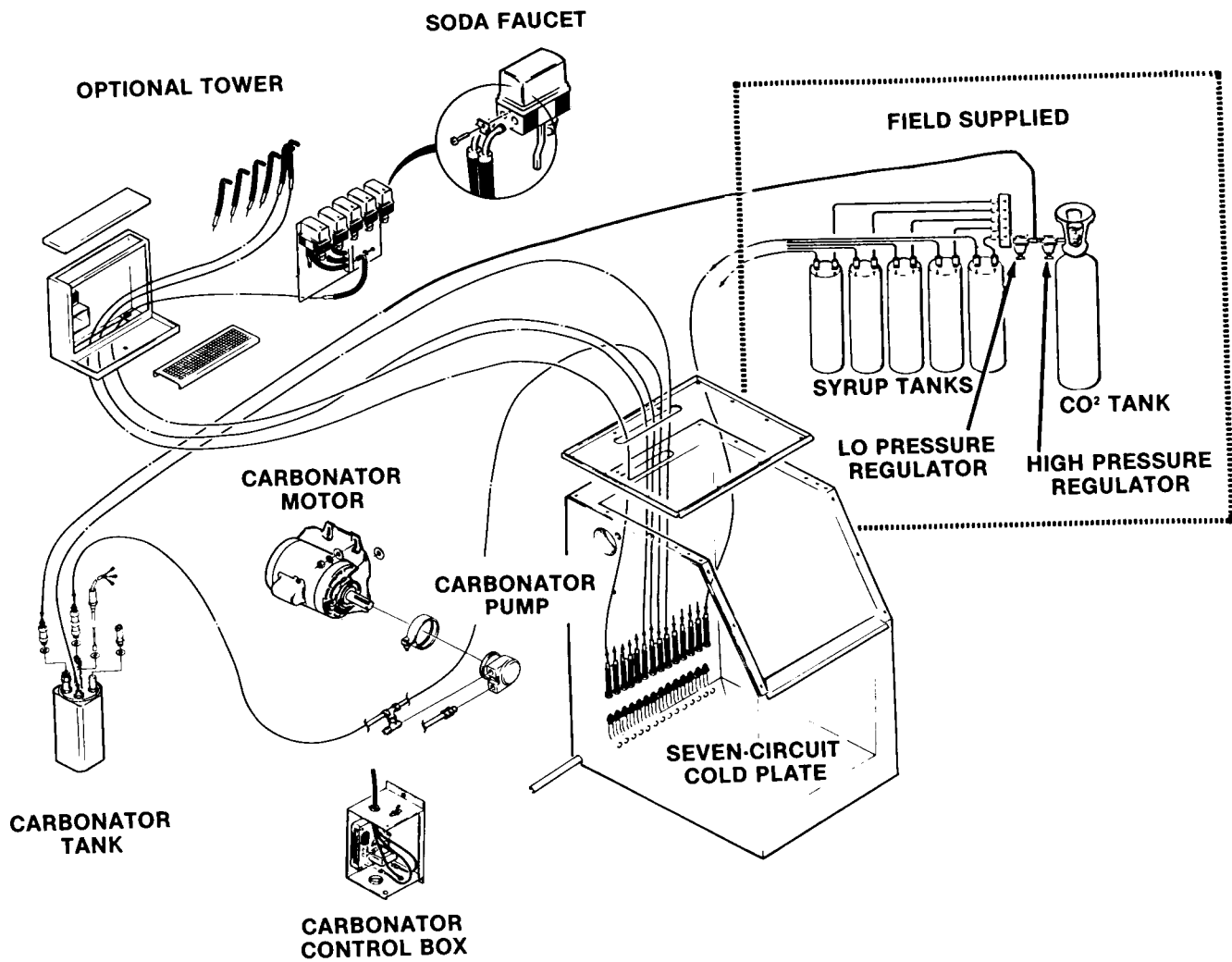
KDT1

McCann's stainless steel tower assembled with five McCann's break-away valves.

PO760 FOR THE INSTALLER



PO760 FOR THE INSTALLER



PO760 FOR THE INSTALLER

LOCATION AND LEVELING

CAUTION

This icemaker is NOT designed for outdoor installations or where air temperatures are below 50-degrees F. or above 100-degrees F. and water temperature is below 40-degrees F. or above 100-degrees F. Extended periods of operation at temperatures exceeding these limitations will constitute misuse, under the terms of the SCOTSMAN manufacturer's limited warranty, resulting in LOSS of warranty coverage.

1. Position the cabinet in the selected permanent location and install legs.

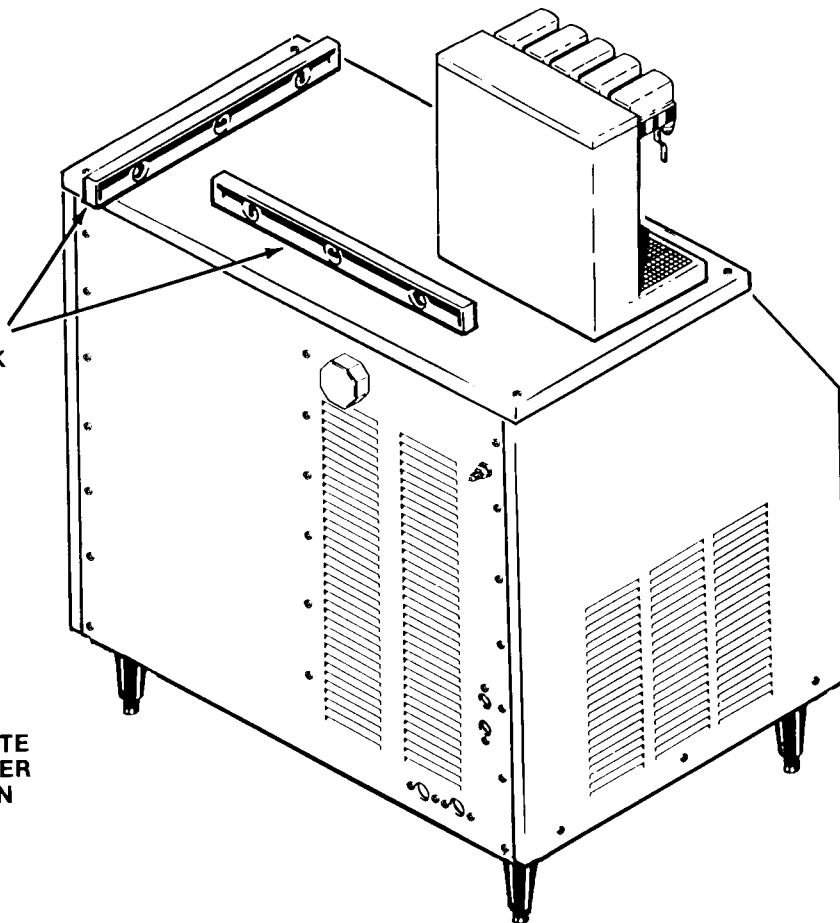
Select a well-ventilated location for the air-cooled model, advising the user to frequently clean the air-cooled condenser, located directly behind the lower front service panel.

SERVICE ACCESS: Adequate space is required for all service connections, located at the back of the cabinet. A six-inch minimum clearance at back and left side panels, for routing cooling air drawn into and exhausted out of the compartment to maintain proper condensing operating on air-cooled models.

2. Install legs, packed in the ice storage bin. When tilting the unit to install legs, DO NOT HANDLE BY THE SODA TOWER.
3. Level the cabinet in both the left-to-right and front-to-back directions. The leveling legs can be adjusted with an open end wrench. (See adjustment of leg levelers.)

LEVEL
LEFT-TO-RIGHT
FRONT-TO-BACK

PROVIDE ADEQUATE
SPACE FOR PROPER
AIR CIRCULATION
AND UTILITY
CONNECTIONS



PO760 FOR THE INSTALLER

DRINK TOWER INSTALLATION

////////// CAUTION //////////

Any soda lines and/or drains should be routed AWAY from the ice machine control box. Syrup in the control box can cause SEVERE DAMAGE and will result in a LOSS of warranty coverage.

////////////////////////////////////

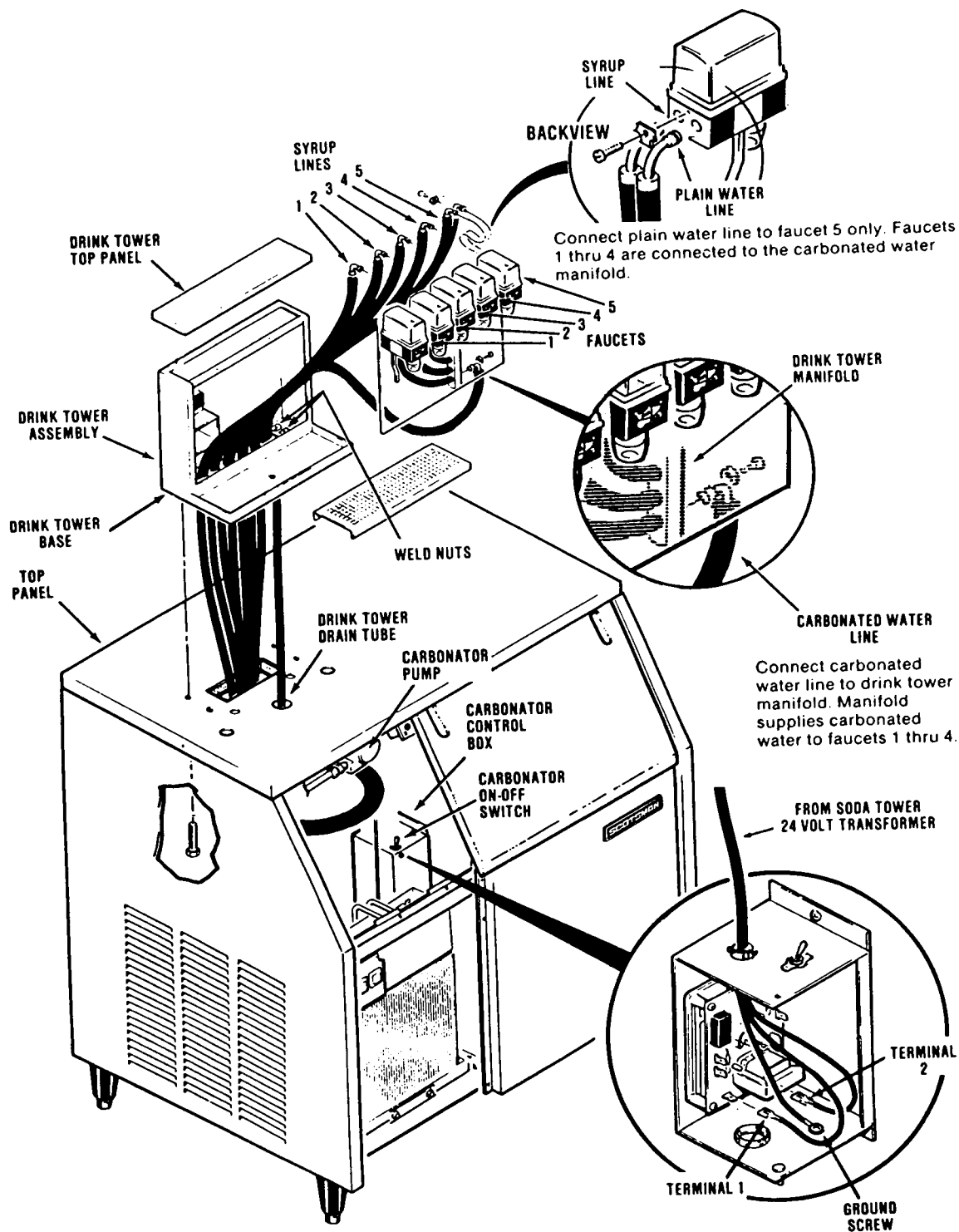
1. Remove two screws and the lower left front panel.
2. Remove trim, screws, left front bracket and upper left front panel.
3. Remove screws and lift the drink tower top panel and separate the front panel with faucets from the drink tower assembly.
4. Apply the sponge rubber adhesive tape supplied with the drink tower kit to the outside edge of the tower base.
5. Route the sink drain tube up through the icemaker top panel and attach to the sink drain fitting.
6. Attach the drink tower to the PO760 Icemaker as follows:
Mount the drink tower to the icemaker top panel with four hex head bolts up through the top panel into the drink tower base weld nuts.
7. Pull syrup, plain water and carbonated water lines up through the PO760 top panel and drink tower base and attach to drink faucets as follows:
Connect syrup lines 1 through 5 at the back of the drink faucets connections 1 through 5.
Connect plain water line routed from the cold plate to faucet number 5.
Connect carbonated water line routed from the cold plate to the drink tower manifold.

8. Remove screws and the carbonator control box cover to gain access.
9. Route the drink tower electrical cord down through the icemaker top panel into the carbonator control box top through the connector. Refer to wiring diagram on the installation instruction sheet and connect drink tower electrically to the icemaker carbonator control box terminals. Connect the black wire to AC 1 terminal and white wire to AC 2 terminal on the carbonator control circuit board. Connect the green wire to the green ground screw in the carbonator control box assembly.

When the icemaker and drink tower installation are complete, operate carbonation system and check for proper operation and leaks. Refer to drink valve SERVICE TIPS supplied with the drink tower kit for correct brix and adjustment information and procedures.

10. Connect all lines from the cold plate to the proper fittings on the syrup tanks. Connect the CO₂ lines to the carbonator tank and syrup tank. See post mix dispenser system schematic.

PO760 FOR THE INSTALLER



PO760 FOR THE ELECTRICIAN

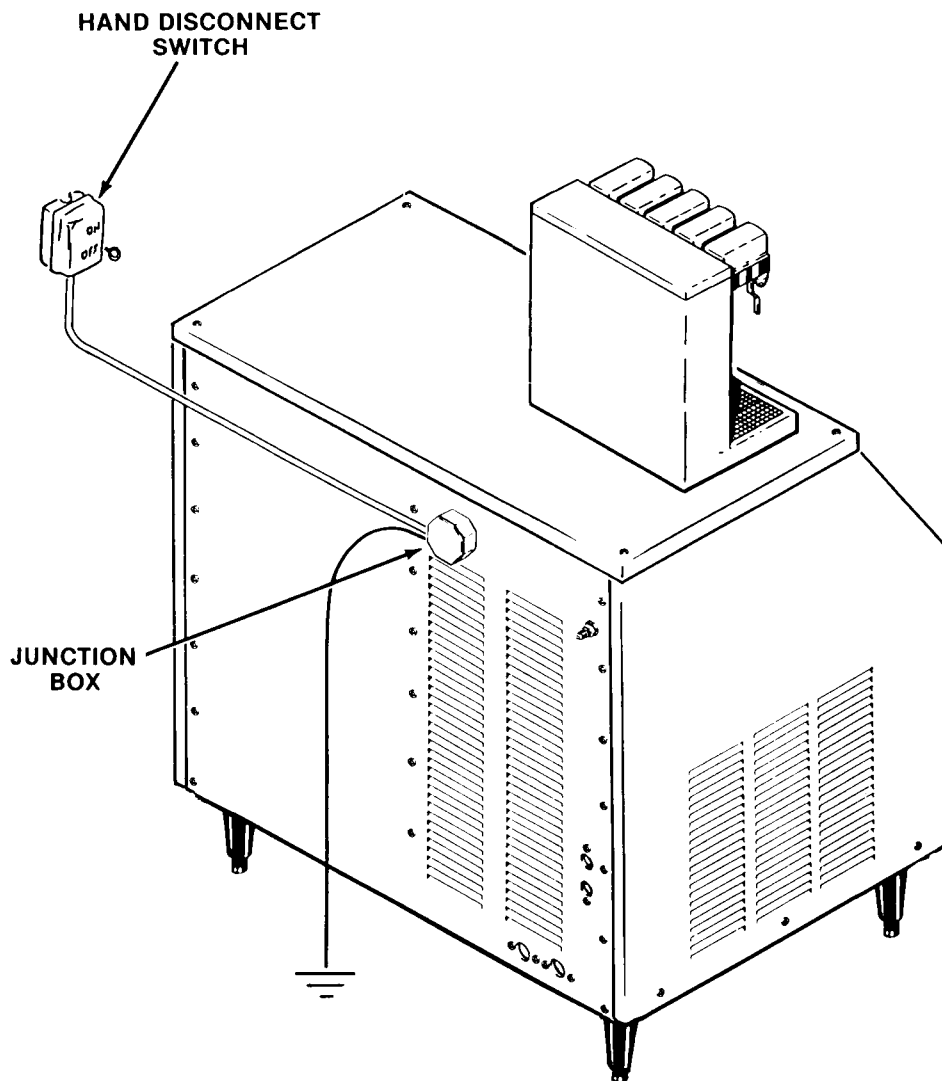
ELECTRICAL CONNECTIONS

SEE NAMEPLATE for current requirements to determine wire size to be used for electrical hookup. The PO760 Icemaker requires a solid earth ground wire. See wiring diagram.

Be certain the icemaker is connected to its own electrical circuit and individually fused. The maximum allowable voltage variation should not

exceed ten percent of the nameplate rating, even under starting conditions. Low voltages can cause erratic operation and may be responsible for serious damage to the overload switch and motor windings.

All external wiring should conform to the national, state and local electrical codes. A permit and services of a licensed electrician will be required.



PO760 FOR THE PLUMBER

WATER SUPPLY AND DRAIN CONNECTIONS

AIR-COOLED MODELS: The recommended water supply line is a 3/8-inch O.D. copper tubing with a minimum pressure of 20 PSIG. A 3/8-inch flare fitting is provided at the water inlet. Connect to cold water supply line with standard plumbing fittings, with a shut off valve installed in an accessible place between the water supply and the cabinet.

In some cases, a plumbing permit and services of a licensed plumber will be required.

CAUTION

This icemaker is equipped with a low water pressure safety device, which in the event of interruptions or low water pressure, the icemaker will automatically stop to prevent damage. It will restart automatically after water pressure is restored.

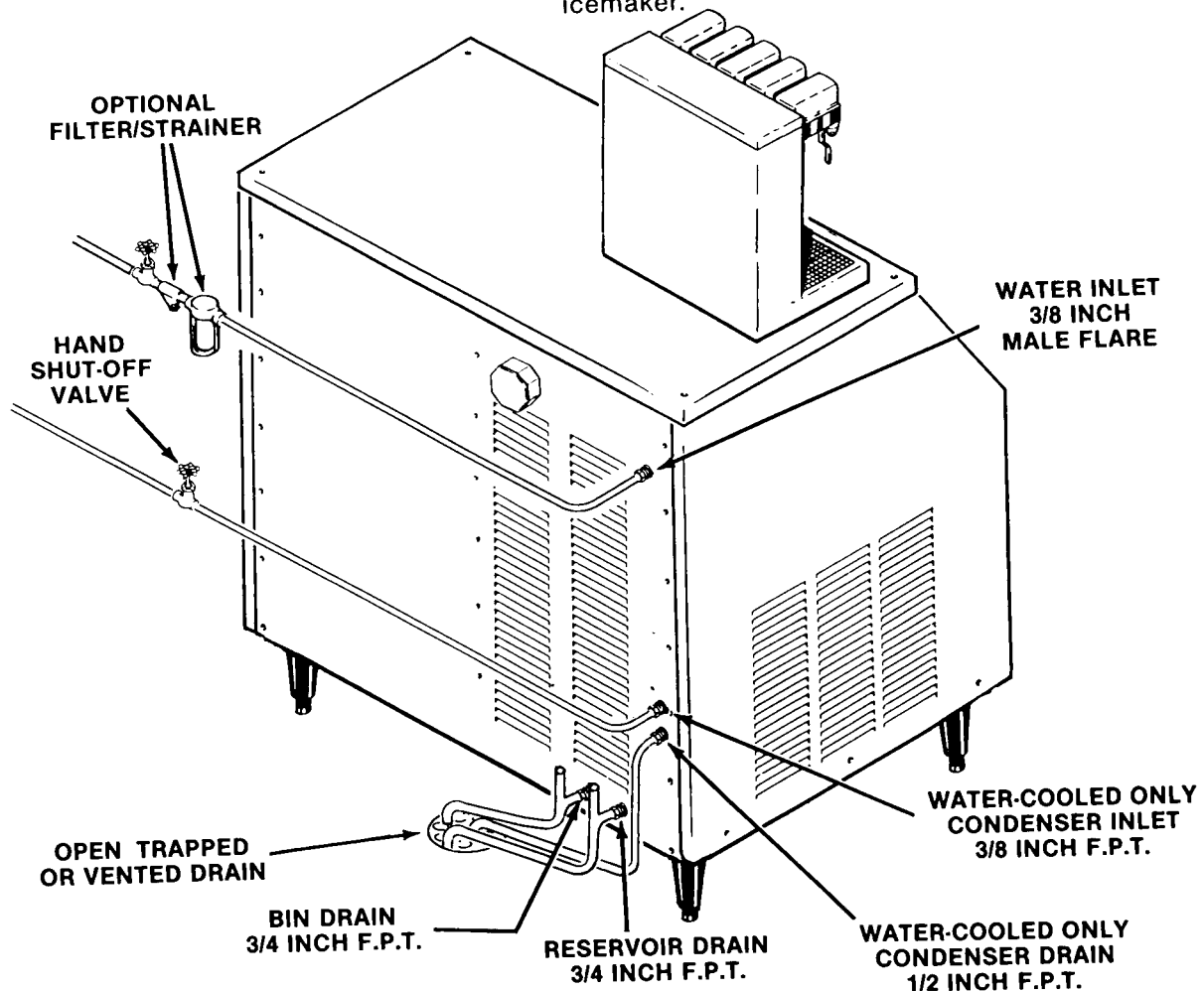
The icemaker in this cabinet will not operate properly when water supply temperatures are below 40-degrees F. or above 100-degrees F.

WATER-COOLED MODELS: On water-cooled models a separate connection to the condenser is required. 3/8-inch O.D. copper tubing is recommended for the separate water inlet line and a separate drain line must be connected.

NOTE

The CAUTION in the text for the air-cooled models equally applies for the water-cooled models. In both type installations, water supply must be installed to conform with the local plumbing codes. In some cases a plumbing permit and services of a licensed plumber will be required.

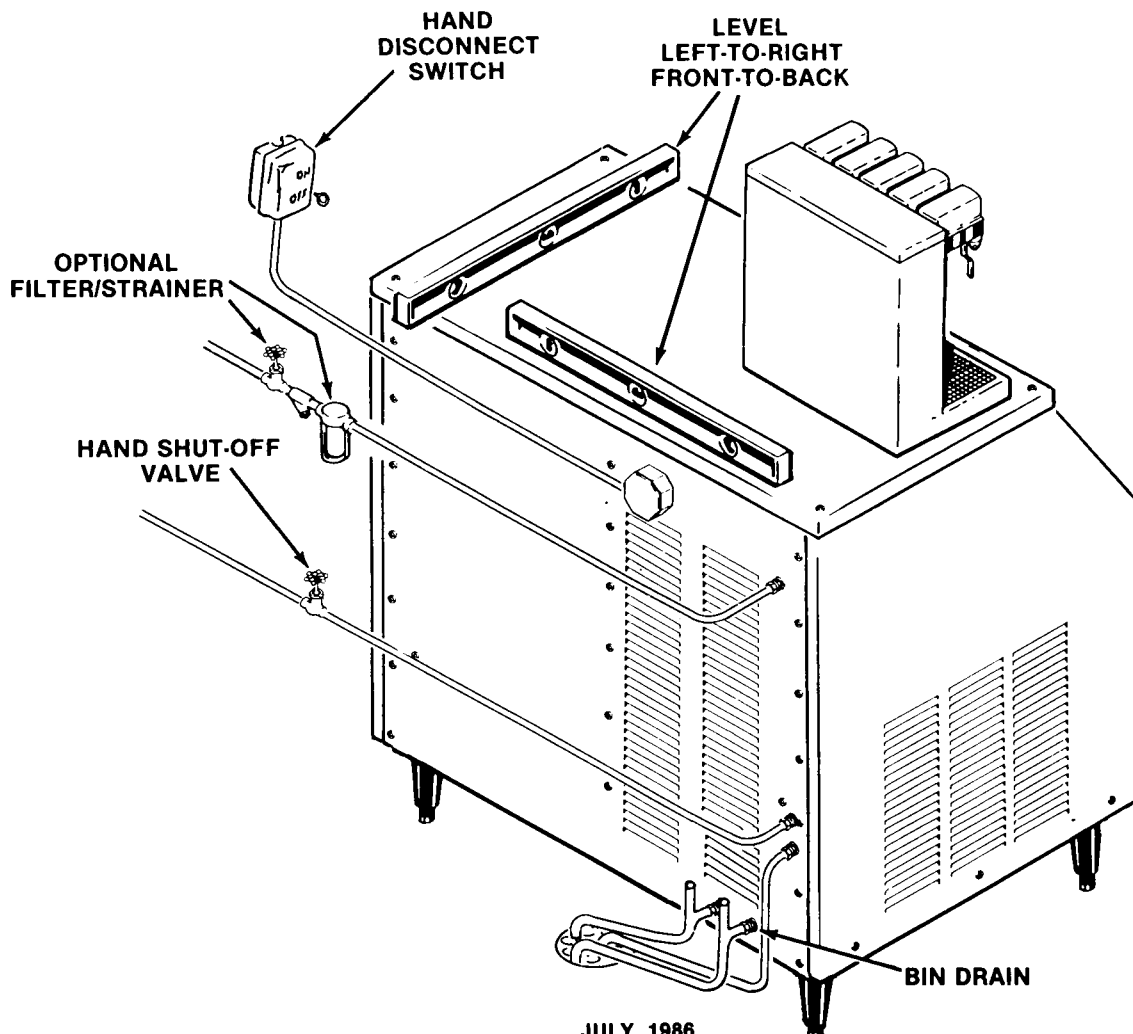
Local water conditions may require the use of water filtration and/or water treatment equipment. Consult your local SCOTSMAN Distributor for advice. Untreated or unfiltered water may adversely affect the operation of any icemaker.



PO760 FOR THE INSTALLER

FINAL CHECK LIST

1. Is the cabinet in a room where ambient temperatures are within the minimum and maximum temperatures specified?
2. Is there at least six inches clearance at the left side and rear of the cabinets for proper air circulation?
3. Has water supply pressure been checked to insure a minimum of 20 PSIG and a maximum of 120 PSIG operating pressure?
4. Is the cabinet level?
5. Have all electrical and piping connections been made and the water supply line shut-off valve installed and electrical wiring properly connected?
6. Have the compressor hold-down nuts been checked to be sure the compressor is snug on the mounting pads?
7. Check all refrigerant lines and conduit lines, to guard against vibration or rubbing and possible failure.
8. Have the bin and cabinet been wiped clean?
9. Has the Manufacturer's Registration Card been properly filled out? Check for correct model and serial numbers from Serial nameplate, then mail the completed card to the SCOTSMAN factory.
10. Has the owner/user been given the Service Manual and instructed how to operate and maintain the icemaker?
11. Has the owner been given the name and telephone number of the authorized SCOTSMAN Service Agency serving him?



PO760 START-UP

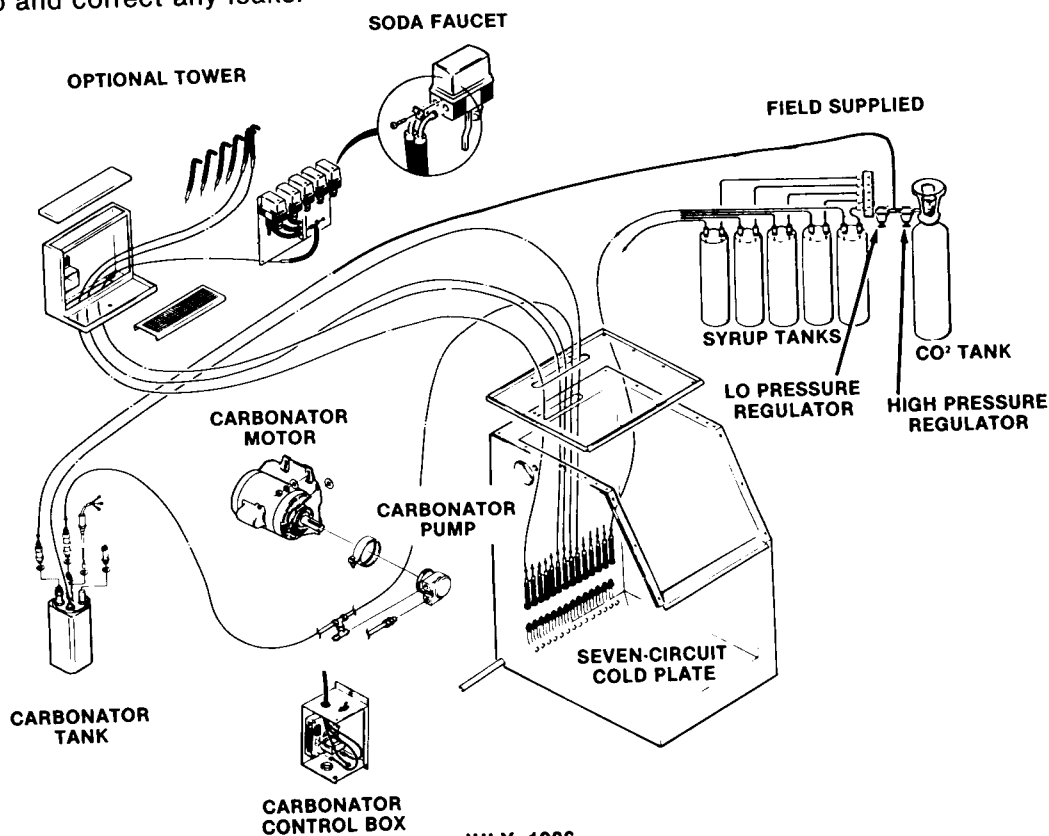
START UP - CARBONATION SYSTEM

1. Remove screws and remove trim strip. Remove screws and the upper left front panel.
2. OPEN the water supply line shutoff valve.
3. Observe the water filling operation, see water schematic.
 - a. Water flows into water reservoir.
 - b. Water flows through water feed line to bottom of freezer assembly.
 - c. Float moves up as water rises.
 - d. Float stops water flow, when water level reaches the molded horizontal line, on the body of the water reservoir.
4. Check all internal water connections for leaks.
5. Connect electrical power from the building source to the icemaker and check voltage.
5. OPEN the soda water valve for one-half minute to blow all air out of the carbonator.
6. CLOSE the faucet.
7. Adjust the CO₂ high pressure regulator and set at 80 PSIG.
8. Slowly open the CO₂ low pressure regulator and set about 15 to 20 PSIG.
9. Check all syrup line fittings to cold plate, dispensing valve connections, etc., with bubble soap and correct any leaks.

10. Move the manual ON-OFF toggle switch, on the top of the carbonator control box, to the ON position. OPEN the soda water valve to start the carbonator pump motor.
11. When the pump starts, CLOSE the soda water valve.
12. Draw several glasses of water and observe the carbonator pump operation. Hold each of the valves open until a full stream of water is obtained.
13. Adjust dispenser drink heads to give correct proportions of dispensed syrup and carbonated water. Refer to the valve instruction sheet for proper adjustment.

NOTE

The pump will operate after about 14 ounces of carbonated water has been drawn. The carbonator will operate satisfactorily on CO₂ gas pressures from 80 to 120 PSIG. For maximum CO₂ gas economy, set the high pressure regulator gauge at 80 PSIG; or, adjust to suit requirements of the faucets used.



PO760 START-UP

START UP - ICEMAKER

1. Press the Master ON-OFF pushbutton and the START-RESET to ON position to start the automatic icemaker operation.

CAUTION

BE ALERT that momentary LOSS OF POWER, such as a brief power outage, will cause the RED light of the START-RESET pushbutton to turn ON. It must be PRESSED, to reset and restart the icemaker.

Repeated need to PRESS the START-RESET pushbutton, requires checking for:

1. Faulty bin thermostat control.
2. Need to clear jammed ice tube.
3. Loose wiring connections.

2. Observe that ice begins dropping into the ice storage bin.
3. Let the system operate until ice covers the bottom of the bin. Check for any excess noises beyond normal compressor noise:
 - a. Fan noises, when air-cooled: blades touch other surfaces; blades bent, out-of-balance, or loose on shaft.
 - b. Vibrating type, from touching lines.
 - c. Chattering: Lack of water in freezer.
 - d. Compressor loose at one or more hold-down bolts.

CAUTION

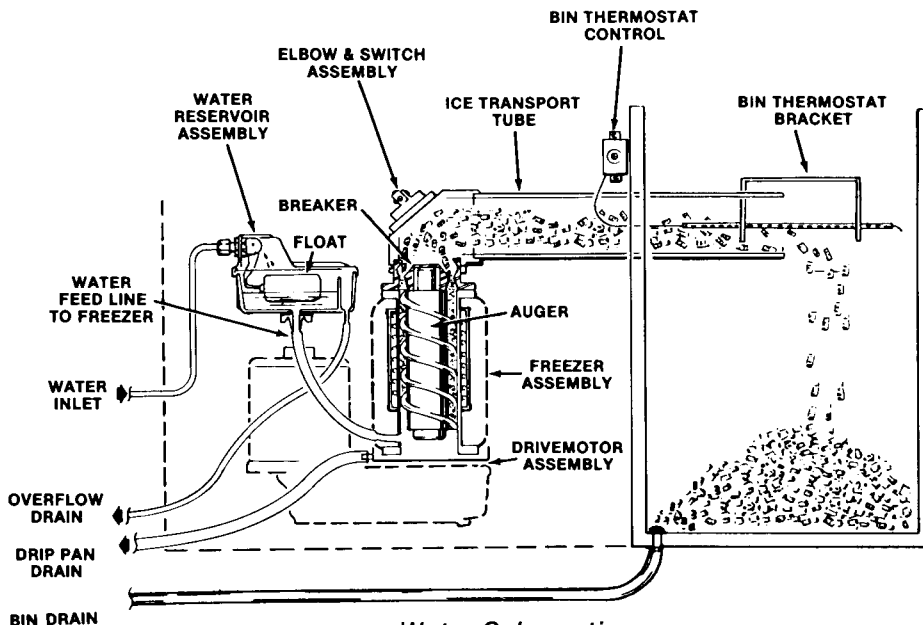
This Icemaker is equipped with a low water pressure safety device, which in the event of interruptions or low water pressure, the icemaker will automatically stop to prevent damage. It will restart automatically after the water pressure is restored.

4. Check Lo side pressure. Should be 10 ± 2 PSIG.
5. Check on Water-Cooled only, High side pressure - adjust if necessary to 135 PSIG.
6. Shut off water to test water safety switch. Compressor should stop. Turn water back on, compressor should start.
7. Check amp draw, compare to Nameplate.
8. Place ice on the ice storage bin thermostat control bulb, to test shut-off.

NOTE

Within minutes after the ice is removed from the sensing bulb, the bulb will warm up and cause the icemaker to restart. This control is factory set and should not be reset until testing is performed. Normal setting is 35-degrees F. CUT-OUT and 45-degrees F. CUT-IN, to prevent short cycling.

9. Thoroughly explain to the owner/user the significant specifications of the icemaker, the start up and operation, going through the procedures for the operating instructions. Answer all questions about the icemaker, by the owner; and, inform the owner of the name and telephone number of the authorized SCOTSMAN Distributor or Service Agency serving him.



PO760 OPERATION

OPERATION

ICEMAKER

The water supply flows from the building source through the inline water strainer, enters at the unit fitting and on to the water reservoir. The water reservoir functions to maintain a constant water level inside the freezer assembly. Water from the water reservoir enters at the bottom of the freezer assembly and is changed into ice by low temperatures inside the freezer.

A stainless steel auger within the freezer is powered by the drivemotor assembly, a direct-drive gear-motor, and the rotating auger carries the ice upward to the end of the auger. See Water Schematic, where excess water is pressed out of the ice, as it is extruded and broken into random length chunks of ice and pushed out through the ice transport tube and into the ice storage bin.

Pressing the Master ON-OFF pushbutton to ON, starts the automatic and continuous icemaking process. When the ice storage bin has been filled with ice, up to the level of the bin thermostat control capillary bulb, the icemaking process shuts OFF.

As ice is removed from the ice storage bin, the bulb warms up, restarting the automatic icemaking process.

Factory settings for the bin thermostat are 35-degrees F. CUT-OUT and 45-degrees F. CUT-IN.

Altitude adjustment should ONLY be performed on icemakers installed at 2000-foot level locations and ABOVE, and adjust only in increments of one-fourth turn of screw at a time.

ELECTRICAL/REFRIGERATION

The Model PO760 icemakers are designed to operate on standard electrical supply 115 volts, 60 Hertz, single phase. Other voltage requirements are available on special order. Therefore, always CHECK NAMEPLATE for electrical information BEFORE proceeding with electrical wiring connections to the icemaker.

Cold ambient temperatures and interruptions in water supply are conditions that can cause excessively hard ice and overloads within the freezer assembly, which is directly transmitted to the drivemotor; and in turn, will cause speed reduction or ultimate freezeup.

When the drivemotor is slowed to a pre-determined RPM, a sensing switch mounted on top of the motor is designed to open the electrical circuit to the compressor. The compressor stops operating, no more ice is produced, and the drivemotor continues to operate rotating the auger to clear the overload and gradually build up to full speed.

At a pre-determined higher RPM drivemotor speed, the speed sensing switch closes the electrical circuit to the compressor, causing the normal icemaking process to resume.

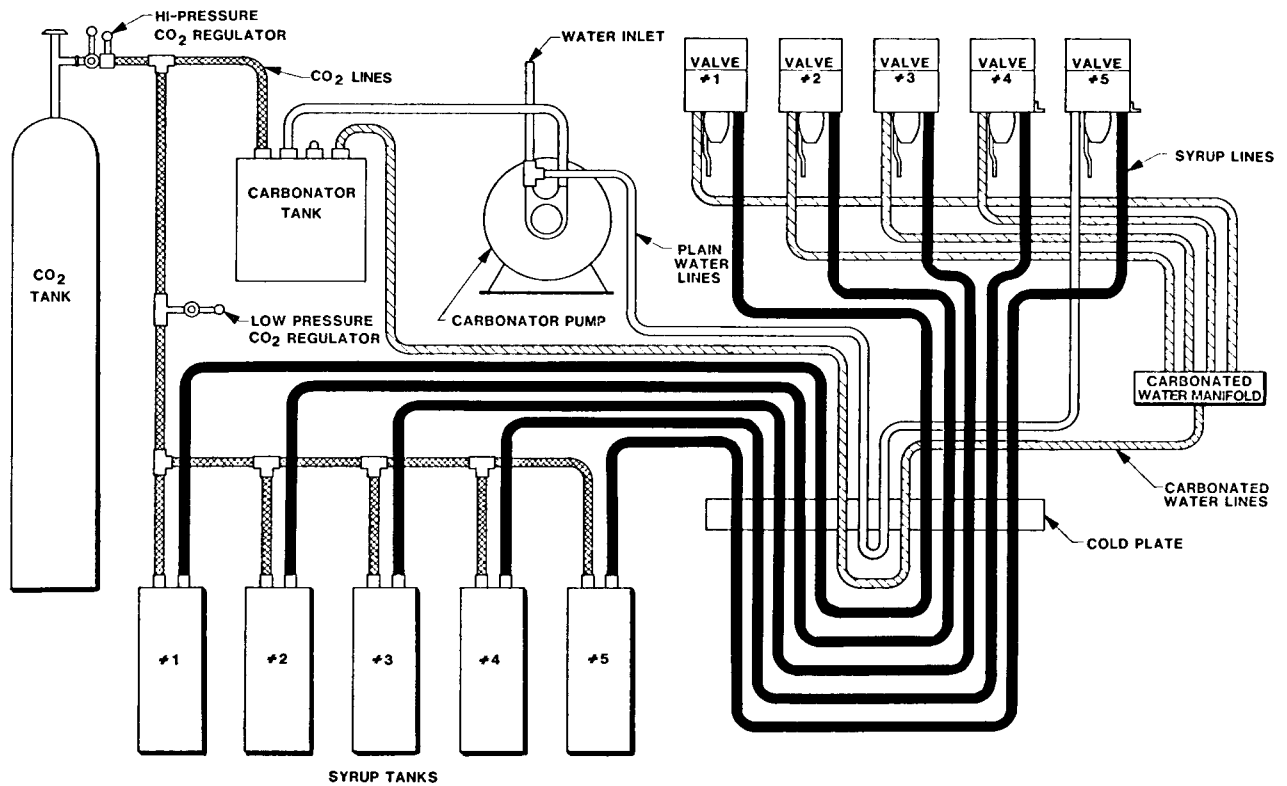
The elbow & switch assembly is mounted on top of the freezer assembly and movement of ice against the rubber diaphragm inside the elbow, actuates the switch. The switch acts as a backup safety switch, should the bin thermostat control fail, and cause ice to jam up the ice transport tube. This safety switch will shut off the icemaker when actuated; or, as stated earlier, when there may occur a momentary loss of power, such as a brief power outage, there will be an immediate and complete shutdown of the icemaker. Pressing the START-RESET pushbutton will of course reset the circuit for RESTART, when the Master ON-OFF pushbutton is ON.

There are three safety controls in the control box on the water-cooled models and two safety controls in the control box for the air-cooled models. The low pressure control, an automatic reset, nonadjustable control, is used on both models and is set to open at zero to four PSIG to stop the compressor. The auger delay switch, a single-pole double-throw (SPDT) switch, functions as a control device to allow the drivemotor to rotate the auger to clear the freezing chamber while the compressor circuit is OFF.

Refer to the appropriate wiring diagram and trace circuitry and control functions, as described in the following paragraph.

As shown on all SCOTSMAN wiring diagrams, the controls are in the ICEMAKING MODE. Thus, the 1-2 contacts are CLOSED. At START-UP, the 1-2 contacts are OPEN and the 3-2 contacts are CLOSED. As the icemaker begins to operate, the low side pressure starts to decrease from the stabilized or at-rest pressure. As soon as the pressure is reduced to 20 PSIG, the 3-2 contacts OPEN and the 1-2 contacts CLOSE.

PO760 OPERATION



Post-Mix Dispenser System Schematic

PO760 OPERATION

CARBONATION

In these SCOTSMAN Dispensers, CO₂ gas pressure is supplied by the CO₂ gas cylinder and is present throughout the system to the carbonator tank and keeps the water carbonated. Without adequate cooling, however, carbonation escapes rapidly after the water leaves the carbonator tank. In order to retain the proper level of carbonation, soft drinks should be dispensed at 40° F. or colder. The ice/cold plate combination in this SCOTSMAN icemaker can provide the proper cooling without danger of freezing the lines.

CARBONATOR TANK

From the carbonator pump the water is pumped to the carbonator tank at high pressure. The water inlet to the carbonator tank is a check valve; therefore, the water enters the tank only when the pump is operating and the water pressure is above CO₂ pressure in the carbonator tank. A water jet breaks up the water into fine spray, as it enters the tank. The CO₂ atmosphere inside the tank mixes with the water to produce carbonated water. The CO₂ gas from the CO₂ cylinder enters the tank through the check valve.

The carbonated water leaves the carbonator tank and is chilled in the stainless steel coils in the cold plate prior to being delivered to the dispensing faucets for use as carbonated water or mixing with syrup as carbonated drinks.

CO₂ gas from the CO₂ cylinder is routed to two places. First, to the carbonator tank where it is mixed with water to produce soda or carbonated water. Second, it is routed to each of the syrup tanks, where the CO₂ gas pressure is used to force the syrup in the tanks through the syrup lines, the stainless steel syrup cooling coils in the cold plate and on to the dispensing faucets, where it is mixed with the carbonated water to provide carbonated soft drinks.

LIQUID LEVEL CONTROL

The pump operation and carbonator tank water level are controlled by the liquid level control.

The solid state control supplies a low voltage circuit to the carbonator tank probe. The probe is highly sensitive and will operate with very pure water, even distilled water.

At start up, the pump motor contacts in the liquid level control are closed and the pump is in operation. As the water rises in the carbonator tank, it comes in contact with the low-level electrode. Nothing happens, since the wire from the electrode connects to an open switch or contact in the liquid level control. As the water continues to rise, it contacts the high-level electrode.

At this instant, an electrical circuit is completed from the common electrode, the body of the tank, through the water to the high-level electrode, through the electrode control and back to the common electrode. This completion of this circuit indirectly energizes the contacts which opens the pump motor circuit and closes a circuit to the electrode. Now as carbonated water is used and the water level drops and breaks contact with the high-level electrode, the pump will remain OFF, since the relay electrode contacts provide a circuit between the high-level and low-level electrodes. As the carbonated water level continues to drop, it breaks contact with the low-level electrode, which indirectly de-energizes the contacts and the pump operates and begins filling the carbonator tank. This cycle continues over and over again, always maintaining a carbonated water level, between the tips of the two electrodes.

Pressure type Dispensing Systems require a CO₂ high pressure regulator gauge to control pressure to the carbonator tank and a CO₂ low pressure regulator gauge to control pressure to the syrup tanks forcing syrup through lines, via the cold plate, to the dispensing heads. Normal low pressure setting is 15 to 20 PSIG.

PO760 OPERATION

The system is automatic in operation and requires no attention except maintaining the CO₂ supply and periodic servicing of water supply line filter.

CAUTION

1. **Insufficient water supply will cause noisy operation and eventual damage to the pump. If the strainer and filter are clear and the water supply line valves open, a noisy pump operation indicates insufficient water supply.**
2. **To prevent water line freeze up, should the installation be idle and exposed to freezing temperatures, disconnect the water supply line and blow all water out of the carbonation system.**



FACTS ABOUT CO₂

CHEMICAL GAS: Carbonic Anhydride, Carbonic Gas, or Carbon Dioxide, as it is variously termed, has the chemical symbol CO₂. It is under normal conditions, a colorless, pungent gas, one and one-half times heavier than air. Chemically, it is the combustion product of the element carbon. It occurs in nature as the result of all types of combustion.

Carbonated water has been found in natural springs in many parts of the world. Such springs have been known for centuries and have been highly regarded for beverage purposes.

Many of the desirable characteristics of carbonated beverages are due to the carbonic gas contained in them. It is therefore, most important to determine the proper amount of carbonation such beverages should contain, and to provide the necessary control to ensure the product carbonation levels.

GOVERNING FACTORS: Carbonated water is largely a mechanical mixture of CO₂ and water and the term, carbonated water, is usually understood to mean water that contains gas to its capacity.

This capacity varies with pressure and temperature. The amount of gas water will absorb increases as the temperature decreases.

Therefore, any measure of the actual gas content of carbonated water will depend on the two factors — pressure and temperature.

The unit of measure that has been adopted as standard is: the volume.

One volume is the amount of gas that water will absorb at atmospheric pressure and at 60 degrees fahrenheit. A volume of gas occupies the same space as does the water by which it is absorbed.

EFFECT OF TEMPERATURE: The Effect of Temperature Chart shows the effect of temperature change on the amount of gas water will absorb.

The pressure is constant, namely, atmospheric or zero pounds gauge. As the temperature of the water is lowered, the amount of gas it will absorb increases, until at 60-degrees F. it is one volume (See the Effect of Temperature Chart). Note that from 60-degrees F. to 150-degrees F. the slope of the curve changes gradually. However, from 60-degrees F. to 32-degrees F. the curve changes more abruptly. At 32-degrees F., or slightly above the freezing point, 1.7 volumes of gas are absorbed by the water at atmospheric pressure. From this curve, it will be apparent that the cooler the water is, the more gas it will absorb.

EFFECT OF PRESSURE: The Effect of Pressure Chart shows the effect of increasing pressures on the amount of gas that water will absorb (temperature being constant). Note that the chart is a straight line, of the same slope throughout, indicating that as the pressure is increased, the gas volumes increase. Furthermore, the gas volume increase is directly proportional to the pressure.

To illustrate: at zero pounds gauge and 60 degrees F., water will absorb one additional volume of gas. If the temperature of the water is 45-degrees F., then, for every 15 pounds increase in pressure, the water will absorb 1.3 volumes of gas.

FOR UNIFORM BEVERAGE — Control Carbonation: Carbonation is an important taste ingredient of your beverage. One of the vital attributes of any beverage is uniform taste, drink after drink. There are four elements that influence the taste of a beverage:

1. FLAVOR
2. SWEETNESS
3. CARBONATION
4. TEMPERATURE

PO760 OPERATION

All but the final temperature of your drink are susceptible to direct control at your location. Flavor and sweetness standards should be and probably are definitely established by means of exact formulas.

Carbonation standards should also be established for each flavor in your line — Sparkling water, ginger ales, and other mixers should be in the high carbonation bracket — the ideal to be sought for is the highest carbonation practically available.

Cola drinks, root beer and other low acid drinks are in the next bracket, usually carbonated to three or three and one-half volumes.

Some bottlers prefer fruit drinks, especially orange, at a lower carbonation. Determine a standard of carbonation for each flavor that you consider best for your market.

Set up definite instructions for maintaining these standards, just as you maintain standard formulas for the sugar flavor, acid and other ingredients.

Having determined the carbonation standards, it is important that all concerned know how to control the factors that will enable you to maintain them.

HOW TO PRODUCE UNIFORM BEVERAGES: Bottlers know the importance of developing the proper formula for a beverage. They fully realize that for any bottled beverage to achieve popular favor, it must be right in flavor, in taste and in gas content.

The development of the proper formula for a beverage is, of course, an essential step in establishing that beverage in popular favor. To keep its popularity, the beverage must be the same from day-to-day and month-to-month. The formula must be followed exactly and the beverage produced in just the same manner.

This means that perfect control of variable factors is necessary to assure uniformity.

The number of volumes of gas in a finished beverage has a definite relationship to the taste of the beverage. Correct carbonation means a sparkling pungent, thirst-quenching beverage that completely satisfies the consumer. Low carbonation leaves the beverage with a flat, insipid taste which is unsatisfactory. Finished beverages should be checked at frequent intervals to assure proper carbonation in the drink.

The amount of sugar in a beverage determines, with a given acid content, its sweetness. The sugar also has another important function in the beverage. Sugar makes the body of the beverage and body is a necessary background for any flavor. A change in the body changes the taste of the beverage even though the same flavor is used. High quality extracts are, of course, a necessity.

Control of sugar content of the beverage is very important. It depends on the Beaume of syrup used and the throw used. Variation in syrup density changes the finished beverage if the throw remains the same. Variation in the throw will also change the beverage if the syrup density is unchanged. By checking the Beaume of the finished beverage a control is established where it does the most good.

Uniform finished beverages can be made only by positive control over such variable factors in beverage production.

Check the density of your syrup with a Beaume scale.

Check the actual throw in the dispensed drink by measuring individual sample drinks.

Check the final result by using the finished drink tester on the complete beverage.

Check the carbonation in the finished beverage.

KNOW YOUR WATER: Water that is satisfactory for drinking purposes is generally satisfactory for carbonating. There are very few exceptions to this rule.

The water used for carbonating must be clean. That means free from suspended matter of all kinds, including water organisms which may be too small to see, except under a microscope.

All water should be properly filtered and it is advisable to use an activated carbon unit after the filter. The ideal set up is to follow the activated carbon unit with a paper filter. This will prevent particles of the carbon passing through with the water.

Chemical composition of the water does not affect carbonation within the limits of potable water. If enough material were in the solution to interfere with carbonation, it would not be possible to use the water for drinking purposes.

Organic matter in solution can cause trouble if present in excessive quantities, but this trouble is removed by activated carbon.

It may be necessary to treat water chemically in some cases. Hardness can be removed by chemical treatment and that is sometimes advisable to prevent scale formation on machinery, particularly on soaker parts. Alkalinity can be reduced by chemical treatment and that is advisable if the alkalinity is high enough to affect the taste of the water, or if it is sufficient to neutralize too much of the acid in the beverage. If objectionable material is present in the raw water, that may require chemical treatment.

Such treatment, properly handled, does not affect carbonation and it does not change the necessity for proper filtration. Chemical treatment should be followed by filtration.

PO760 OPERATION

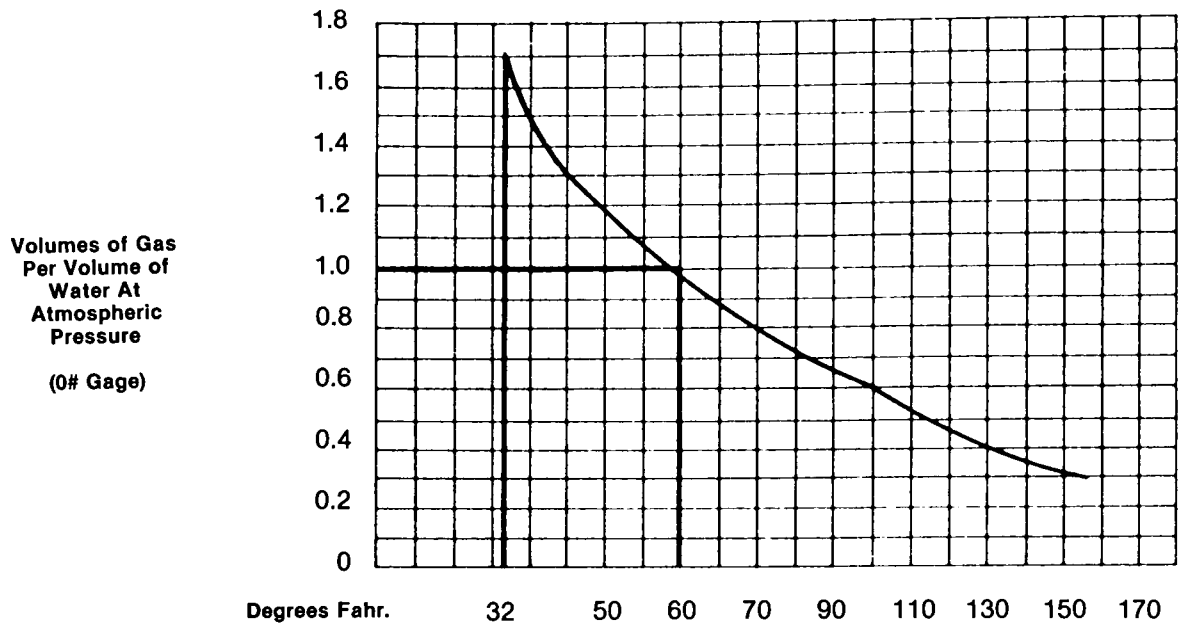
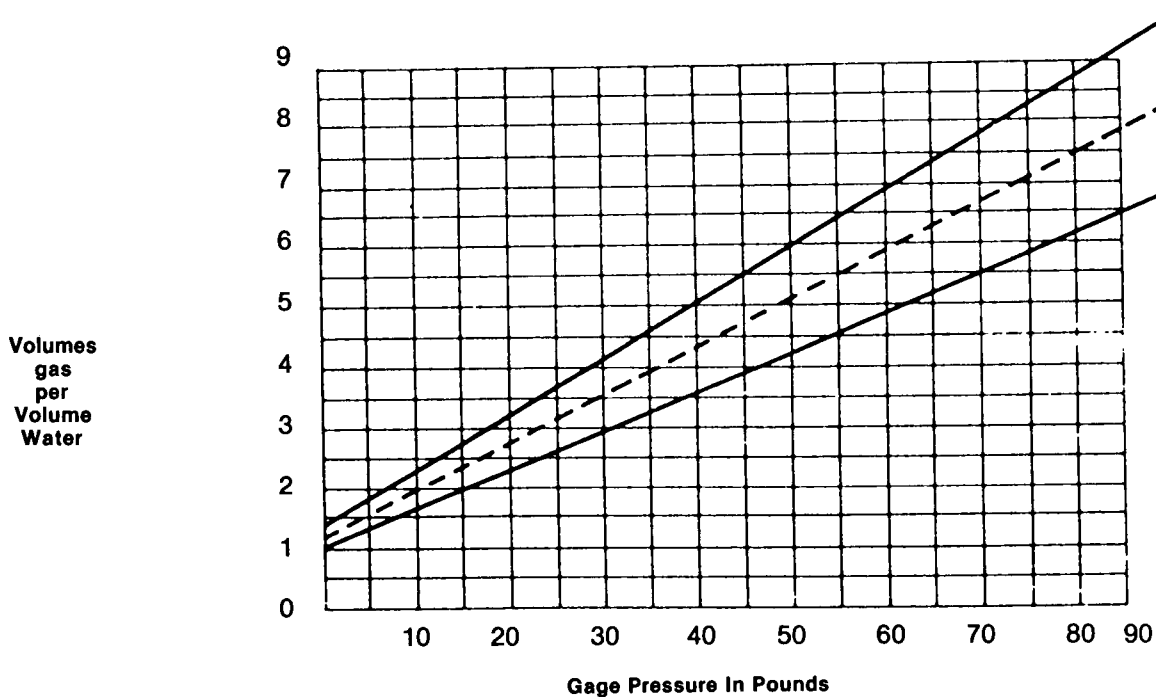


Chart shows the effect of temperature change on the amount of gas water will absorb.

Effect of Temperature



Effect of Pressure

PO760 OPERATION

AIR — FOE TO CARBONATION AND HOW TO COMBAT IT: Too much air in the water interferes with proper carbonation and also causes the CO₂ gas to leave the water more quickly when the bottle of finished beverage is opened. It is, therefore, important to reduce the amount of air present to the minimum.

Some air is present in the raw water supply. More may be added in the mechanical handling of the water. When such water reaches the carbonator, the CO₂ gas tends to drive it out of the water. If steps are not taken to remove it, this air will accumulate in the carbonator and much of it will be carried through in the water and into the finished beverage. That is why all liquid carbonators have an automatic air snift.

PRESSURE AND COOLING CONDITIONS: Two conditions must be maintained in order to induce and hold carbonic gas in water. They are:

1. Pressure
2. Adequate refrigeration or cooling

Most of the cold drinks served at a soda fountain are carbonated. Therefore, nothing is more important to the successful operation of a fountain than cold, properly carbonated water to make drinks sparkling, full flavored and fully satisfying in quality.

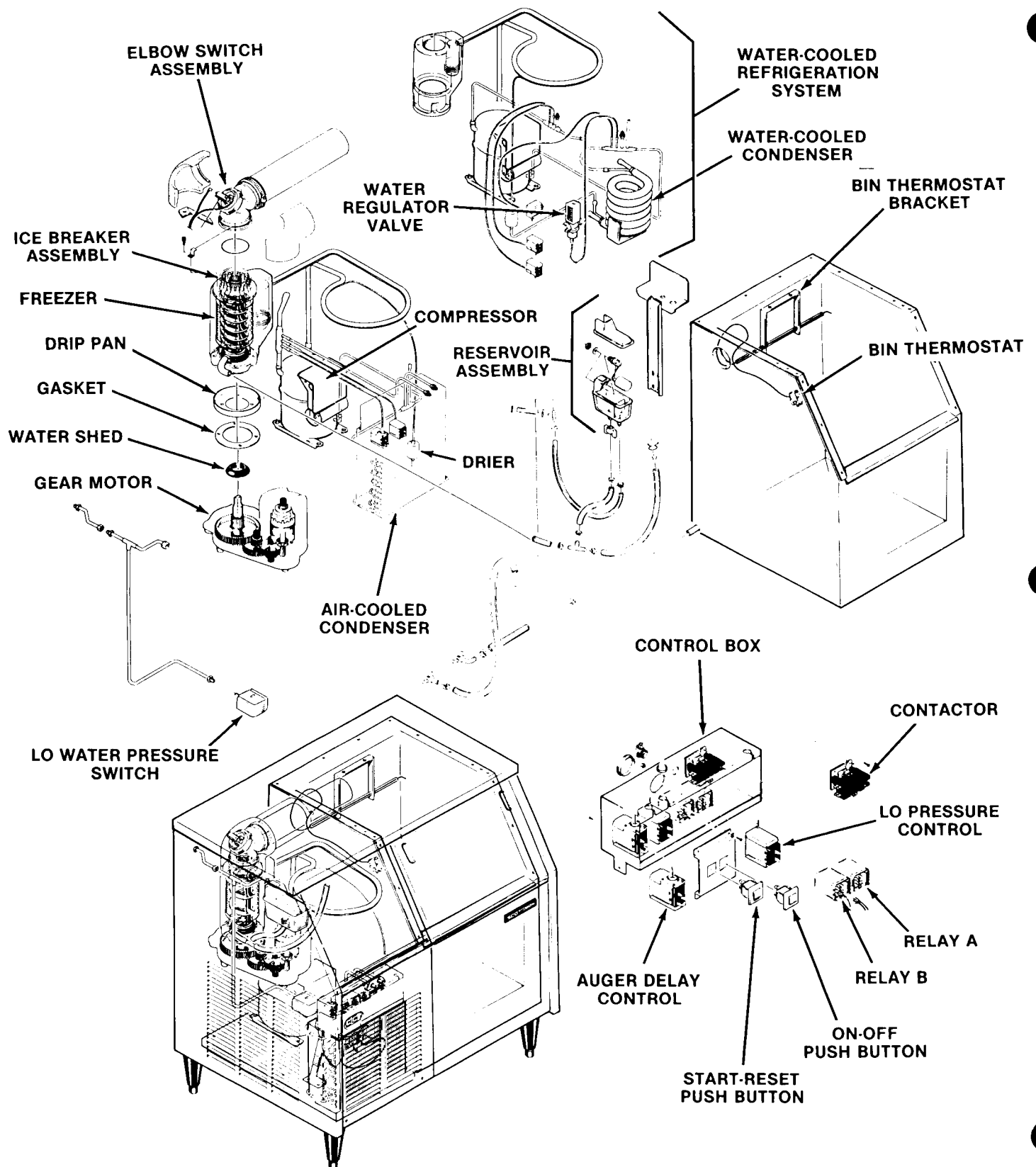
Water is carbonated by combining it with carbonic acid gas, CO₂. This is done in a sealed chamber by forcing gas from a drum through a pressure regulating valve into the water in this chamber. As the carbonated water is used from this chamber, it is replaced by a high pressure water pump. The operation of this pump is controlled by an automatic switch device which senses the water level.

CO₂ GAS DRUMS: Drums, also called tanks, for carbonic acid gas are made of drawn steel tubing and are built to withstand great pressure. As delivered, they contain liquid gas reduced to liquid form by tremendous compression.

Each drum or tank is equipped with a safety valve set to blow out before internal pressure can explode the drum itself. Once this valve pops off, the contents of a drum will escape. Drums, therefore, should always be stored in a cool place to keep the liquid from expanding and increasing pressure inside the gas drum.

Drums are classified by weight. As a rule, drums are of two sizes: 20-lb. drums and 50-lb. drums. These weights refer to the compressed liquid contents and are in addition to the weight, usually indicated on the head of each drum.

PO760 COMPONENT DESCRIPTION



PO760 COMPONENT DESCRIPTION

ELBOW SAFETY SWITCH

The elbow safety switch is an ON-OFF switch that shuts off the compressor when an ice jam presses against the rubber diaphragm depressing the switch and opening the circuit. Melting action relieves pressure closing the circuit, lighting the start-reset pushbutton. The start-reset switch must then be pressed to start the automatic icemaking process.

ICE BREAKER ASSEMBLY

The ice breaker assembly, bolted to the top of the freezer, contains the bearing and seal for the top of the auger. Flaked ice created by the freezer is carried by the auger to the ice breaker assembly and the flaked ice is pushed by the auger through the tapered holes in the ice breaker. Flaked ice is compressed by auger pressure as it is pushed through the ice breaker assembly and the shafts of compressed ice are broken into random lengths of Ice Nuggets by the taper on the top of the ice breaker.

DRIVEMOTOR

The drivemotor assembly rotates the auger through a series of reduction gears from the electric motor to the freezer assembly. Cold ambient temperatures and interruptions in water supply are conditions that can cause excessively hard ice and overloads within the freezer assembly which is directly transmitted to the drivemotor; and in turn, will cause speed reduction or ultimate freezeup.

When the drivemotor is slowed to a pre-determined RPM, a sensing switch in the motor is designed to open the electrical circuit to the compressor. The compressor stops operating, no more ice is produced and the drivemotor continues to operate rotating the auger to clear the overload and gradually build up to full speed.

At a pre-determined higher RPM drivemotor speed, the speed sensing switch closes the electrical circuit to the compressor causing the normal icemaking process to resume.

WATER PRESSURE SAFETY SWITCH installed in the potable water inlet line is set to electrically open at 10 PSIG and stop the compressor. This **AUTOMATIC RESET** switch will restart the icemaking process when water pressure rises to 20 PSIG.

WATER REGULATOR VALVE WATER-COOLED MODELS

The water regulator valve functions to maintain a constant head pressure, by regulating the amount of incoming water flow through the condenser, on water-cooled models. The valve operates through the refrigerant system high side pressure. Rotating the adjusting screw, located on top of the valve, can **INCREASE** or **DECREASE** the operating head pressure. 135 PSIG is the normal discharge pressure.

WATER RESERVOIR

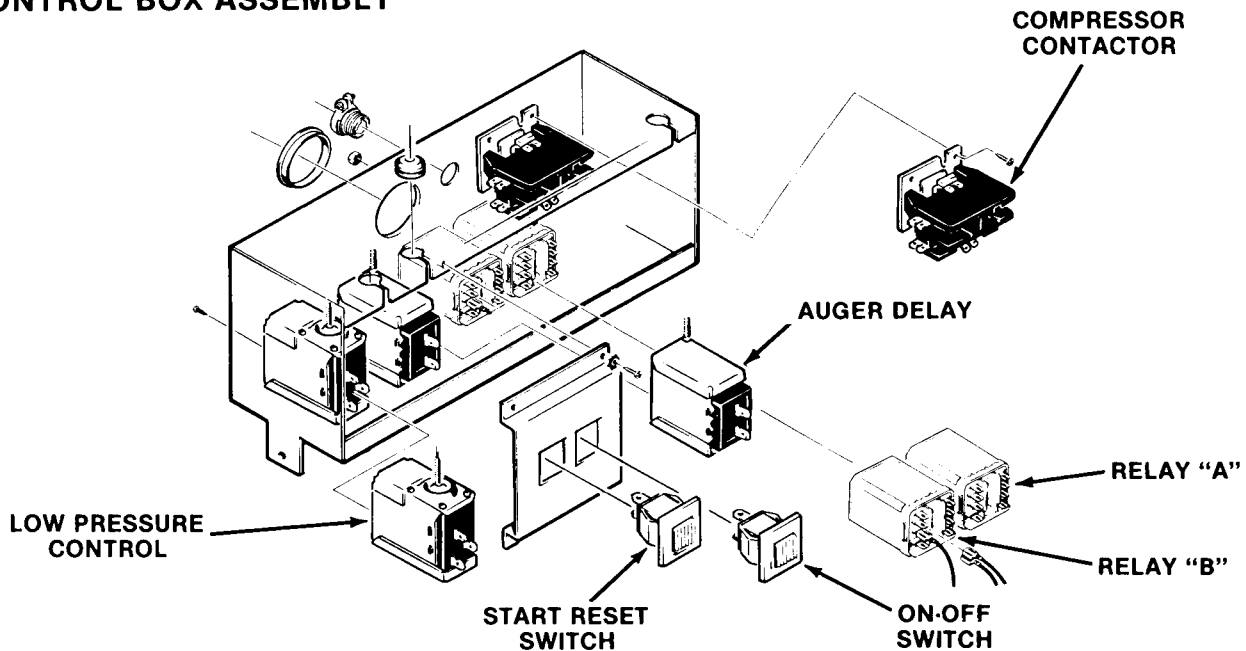
The water reservoir, with a float valve assembly, maintains a consistent water supply within the freezer assembly. The water level in the reservoir is the same water level as in the freezer and the correct water level in the freezer is level with the top of the auger flights. The water level in the freezer can be adjusted by raising or lowering the water reservoir with the bracket.

BIN THERMOSTAT BRACKET

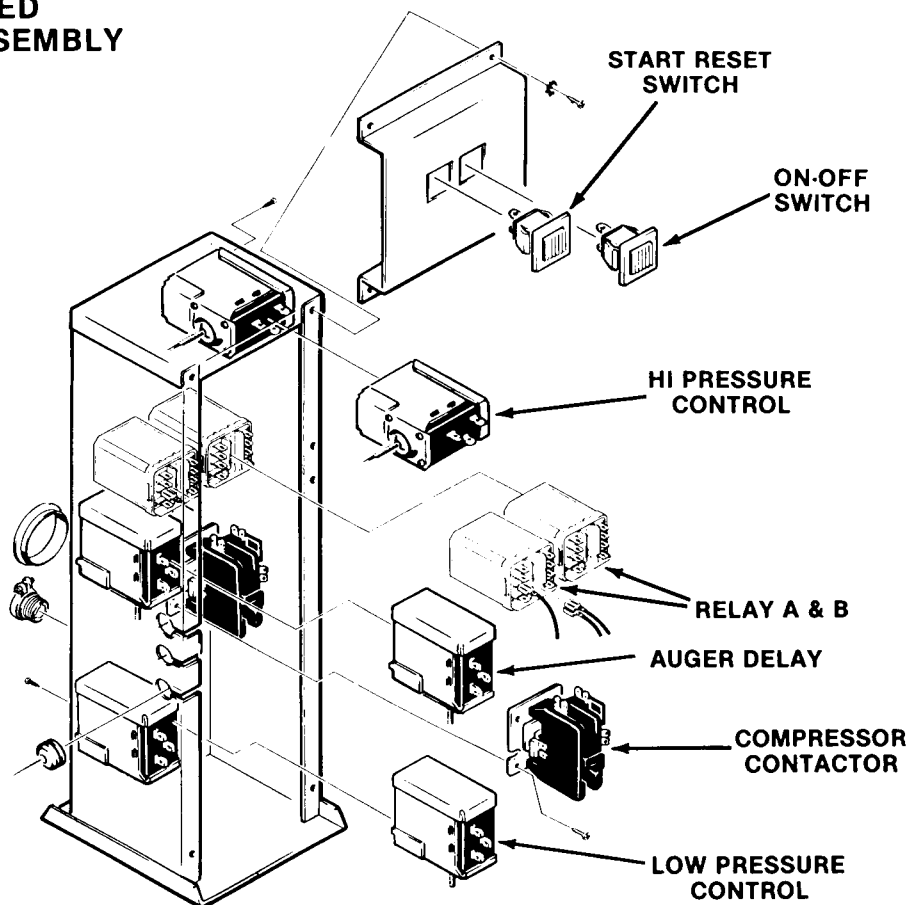
The bin thermostat bracket is the bin full ice contact point of the bin thermostat capillary tube.

PO760 COMPONENT DESCRIPTION

AIR-COOLED CONTROL BOX ASSEMBLY



WATER-COOLED CONTROL BOX ASSEMBLY



PO760 COMPONENT DESCRIPTION

ON-OFF PUSHBUTTON (AMBER)

When pushed completes the electrical circuit through the icemaker electrical components. The ON-OFF PUSHBUTTON is illuminated whenever it is ON (and electrical power is ON).

START-RESET SWITCH (RED)

Must be pushed to initially start unit. Also it's illuminated when bin overfills and spout switch opens to stop the machine, or in the event of a power interruption to the unit.

REFRIGERANT LO PRESSURE CONTROL is factory set to automatically SHUT DOWN the icemaker if the low-side pressure drops below 4 PSIG. This is an AUTOMATIC RESET control.

AUGER DELAY SWITCH, a single-pole double throw (SPDT) switch, allows the gearmotor to rotate the Auger and clear the freezing chamber after the bin ice level switch circuit to compressor is OFF. When the icemaker restarts, the gearmotor starts in a no load condition, preventing excessive loading of gearmotor and bearings.

HI PRESSURE CONTROL (WATER-COOLED ONLY)

This manual reset control shuts off the ice machine should the high side refrigeration pressure exceed 250 PSIG. This may happen when the cooling water to the condenser is interrupted.

COMPRESSOR CONTACTOR (IN CONTROL BOX)

A single-pole contactor is used to supply current to the compressor; and, is wired so any control in the pilot circuit, such as the bin thermostat and high pressure control, etc., will cause the contactor coil to be de-energized, when the control contact OPENS, thereby breaking the circuit to the compressor through the contactor points.

COMPRESSOR START RELAY (ON COMPRESSOR)

The compressor start relay completes the circuit to the compressor from the start capacitor to provide enough energy to start the compressor. When the compressor motor has reached the proper RPM's, the compressor relay opens and removes the start capacitor from the circuit.

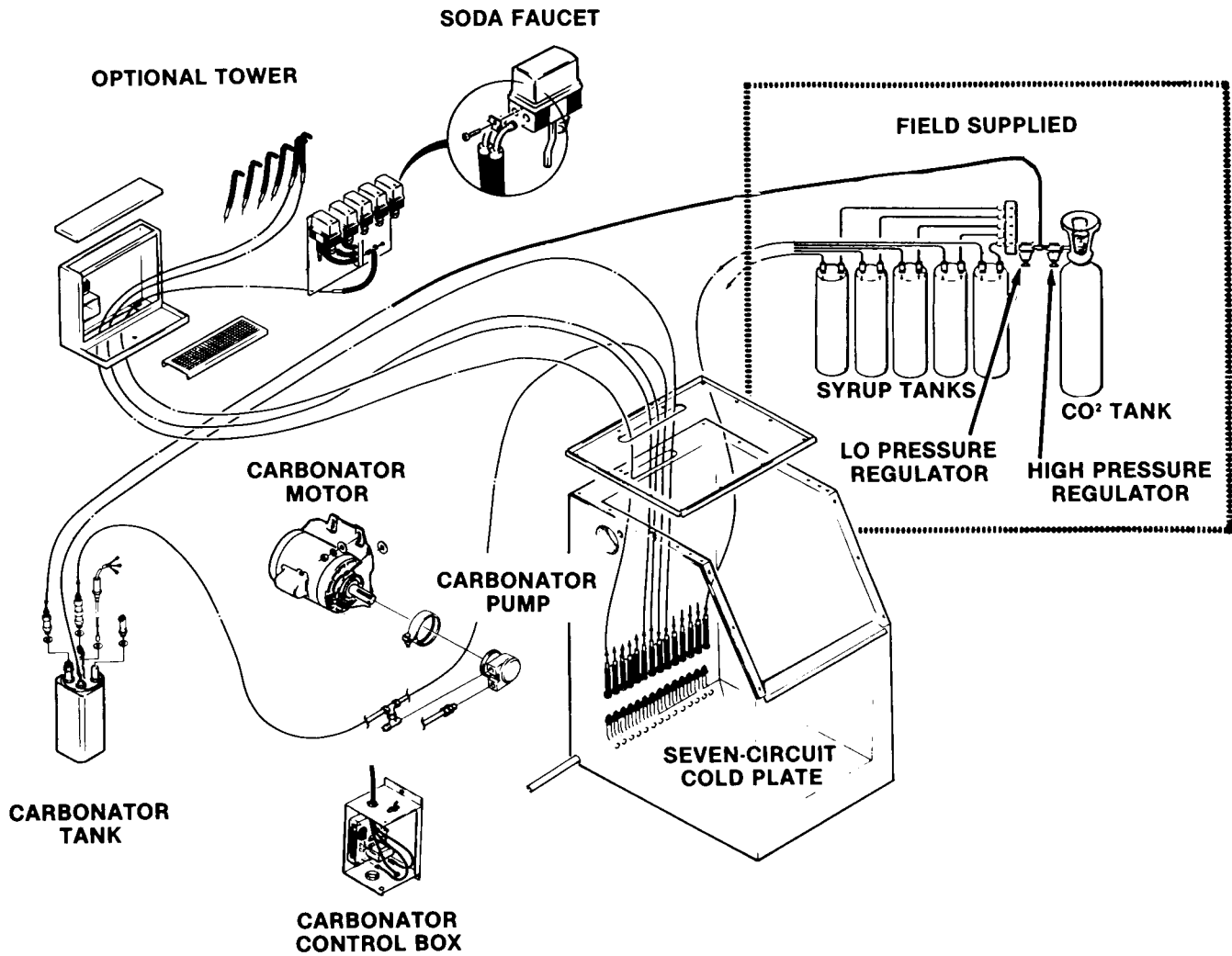
ELBOW SAFETY SWITCH RELAY "A"

The elbow safety switch relay "A" maintains a circuit through the elbow safety switch until the elbow safety switch opens and switches the current through the lamp of the start reset pushbutton, which must be pushed and reset to restart the automatic icemaking process.

RELAY "B"

Relay "B" protects the compressor contactor from chattering during operation of the icemaking system.

PO760 COMPONENT DESCRIPTION



PO760 MAINTENANCE & CLEANING INSTRUCTIONS

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A Scotsman Ice System represents a sizable investment of time and money in any company's business. In order to receive the best return for that investment, it MUST receive periodic maintenance.

It is the USER'S RESPONSIBILITY to see that the unit is properly maintained. It is always preferable; and less costly in the long run, to avoid possible down time by keeping it clean, adjusting it as needed and by replacing worn parts before they can cause failure. The following is a list of recommended maintenance that will help keep your machine running with a minimum of problems.

Maintenance and Cleaning should be scheduled at a MINIMUM of twice per year.

ICEMAKER

THE FOLLOWING MAINTENANCE SHOULD BE SCHEDULED AT LEAST TWO TIMES PER YEAR ON THIS ICEMAKER. CALL YOUR AUTHORIZED SCOTSMAN SERVICE AGENCY.

1. Check and clean water line strainers.
2. Check that the water level in the water reservoir is at the water level on the side of the float.
3. Remove cover from water reservoir and depress the float to insure that a full stream of water enters the reservoir.
4. Check that the icemaker cabinet is level, (n side-to-side and front-to-back directions.
5. Clean the water reservoir and interior of the freezer assembly, using a solution of SCOTSMAN Ice Machine Cleaner. Refer to CLEANING-Icemaker.
6. When doubtful about refrigerant charge, install refrigerant gauges on Schrader valves and perform steps 6 and 7. Check gauge for compressor head pressure:
AIR-COOLED MODELS: Varies between 130 and 145 PSIG.
WATER-COOLED MODELS: Set at 135 PSIG. Adjust screw on top of water regulator valve to raise or lower head pressure.
7. Check gauge for suction line pressure:
Varies between 8 and 12 PSIG, depending upon inlet water temperature and ambient air temperature.

AFTER SERVICING REFRIGERATION SYSTEM:

TORQUE REFRIGERATION ACCESS VALVE CAPS TO 60-75 INCH POUNDS.

8. Check drivemotor operation:
Normal operating temperatures are about 160-degrees F., which is hot to touch. Oil motor once per year. Compressor should not start until this motor is up to full speed.

WARNING

Disconnect electrical power supply before removal procedures.

9. Check the elbow safety switch by removing the insulation halves, twisting the locking ring 90° and pulling out the switch assembly. The switch action can then be tested.

NOTE

The elbow safety switch is an ON-OFF switch that shuts off the compressor when an ice jam presses against the rubber diaphragm depressing the switch and opening the circuit. Melting action relieves pressure closing the circuit, lighting the start-reset pushbutton. The start-reset switch must then be pressed to start the automatic icemaking process.

10. Clean the air-cooled condenser, using vacuum cleaner, whisk broom or brush. Instruct customer to clean frequently and to be sure icemaker and fan motor are OFF.
11. Check that fan blades move freely, are not touching any surfaces and are not bent or out of balance.
12. Check for water leaks. Pour water down bin drain to be sure that drain line is open and clear.
13. Check the bin thermostat control bulb for position and function.

NOTE

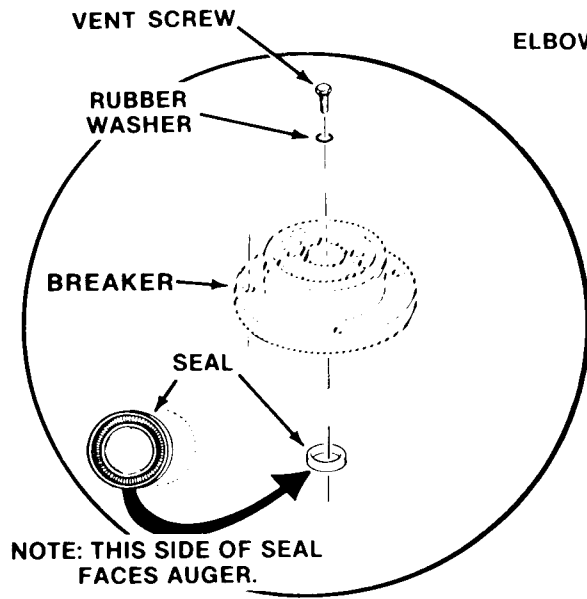
The bin thermostat is factory set at 10-degrees F. differential and should keep the entire icemaker shut off at least 20 minutes in high ambient temperatures, longer in low ambient temperature during normal operation. Settings are 35-degrees F. CUT-OUT and 45-degrees F. CUT-IN.

PO760 MAINTENANCE & CLEANING INSTRUCTIONS

NOTE

If the unit being serviced is equipped with a **STEEL NEEDLE** bearing, the breaker assembly should be **REPLACED**. Contact your local Scotsman Distributor for further information. Breakers with a **NON-METALLIC** bearing should be cleaned and the seal replaced **ONCE PER YEAR**. If the type of breaker bearing is not known, the breaker should be inspected. All A and B models were equipped with steel needle bearings. Most C Models have the non-metallic bearings.

1. Remove elbow insulation and remove three Allen head screws and spout retaining brackets from the freezer assembly end of the elbow and switch assembly.
2. Remove three Allen head screws and spout retaining brackets from the freezer assembly end of the elbow and switch assembly.



NOTE

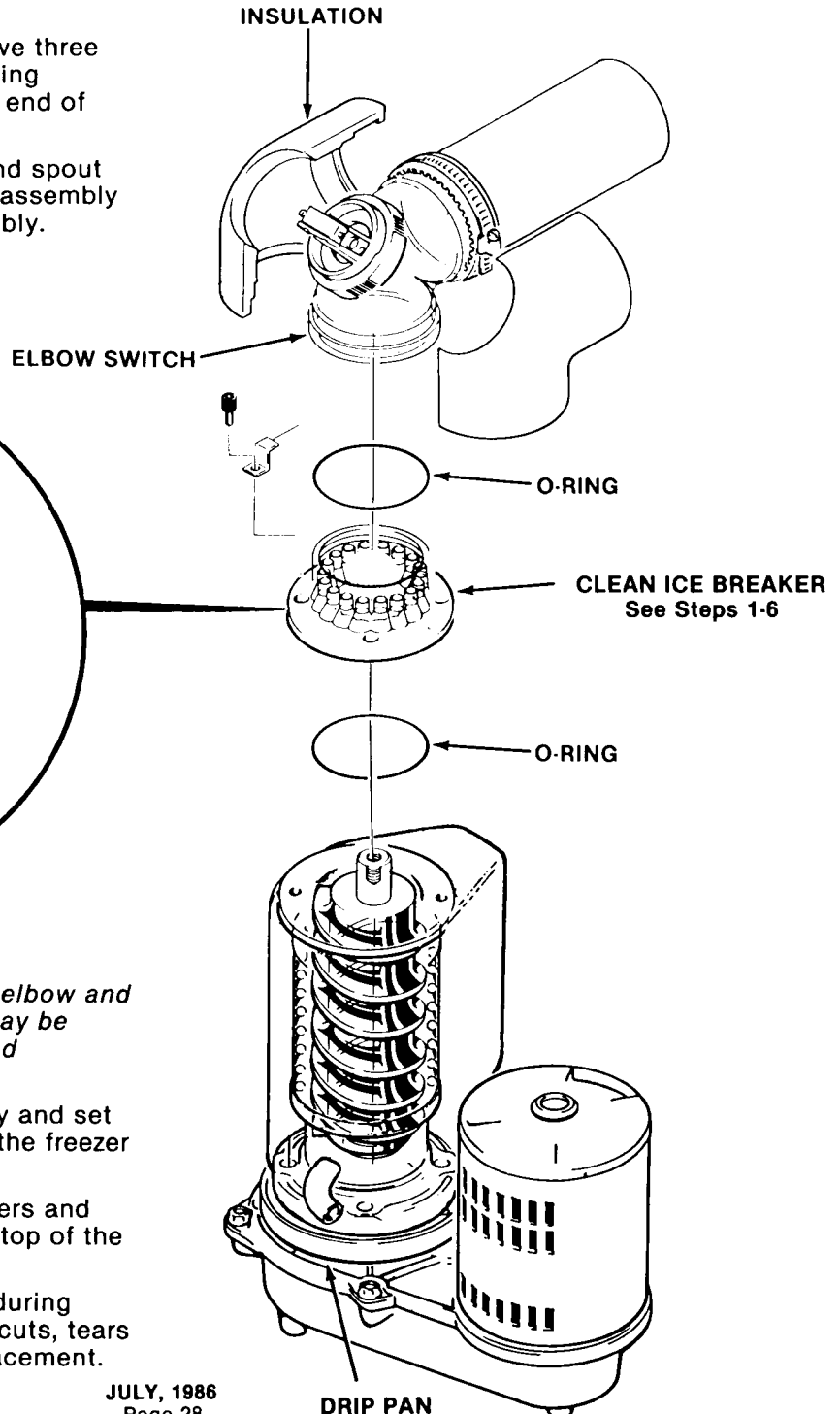
In order to accomplish removal of the elbow and switch assembly in the next step, it may be necessary to further remove panels and disassemble the ice transport tube.

3. Lift the elbow and switch assembly and set aside to gain access to the top of the freezer assembly.
4. Remove four capscrews, lockwashers and the ice breaker assembly from the top of the freezer assembly for inspection.
5. Retain the O-ring for replacement during reassembly. Inspect the O-ring for cuts, tears or excessive wear, causes for replacement.

6. Replace the lip seal and inspect the top bearing seated in the ice breaker, wipe clean of mineral build up. Remove auger. Check seal and check auger for stains.

CAUTION

DO NOT force the auger and breaker together without having the vent hole open because pushing the breaker on with no air relief will cause the internal air pressure to force the grease seal away from the breaker.



PO760 MAINTENANCE & CLEANING INSTRUCTIONS

CLEANING — Icemaker

1. PRESS the master ON-OFF pushbutton to OFF.
2. Remove the top and front panels.
3. Remove all ice from the ice storage bin.
4. Block the float up in the water reservoir.
5. Use drain hose provided in the water feed tube and drain the reservoir, re-plug drain hose.

//////////////////// **WARNING** //////////////////////

SCOTSMAN Ice Machine Cleaner contains Phosphoric and Hydroxyacetic acids. These compounds are corrosive and may cause burns. If swallowed, DO NOT induce vomiting. Give large amounts of water or milk. Call Physician immediately. In case of external contact flush with water. KEEP OUT OF THE REACH OF CHILDREN.

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6. Prepare cleaning solution: Mix six ounces of SCOTSMAN Ice Machine Cleaner with one and one-half quarts of hot water.
7. Slowly pour the cleaning solution into the water reservoir.
8. PRESS the master ON-OFF pushbutton to ON.
9. Continue to slowly pour the cleaning solution into the water reservoir, maintain level just below the reservoir overflow.
10. Continue icemaking, using the cleaning solution, until all the solution is used up and the water reservoir is almost empty. DO NOT allow the icemaker to operate with empty reservoir.
11. PRESS the master ON-OFF pushbutton to OFF.

12. Wash and rinse the water reservoir cover.
13. Remove the block from the float in the water reservoir.
14. PRESS the master ON-OFF pushbutton to ON.
15. Continue icemaking for at least 15 minutes, to flush out any cleaning solution. Check ice for acid taste - continue icemaking until ice tastes sweet.
16. PRESS the master ON-OFF pushbutton to OFF.

//////////////////// **WARNING** //////////////////////

DO NOT use ice produced from the cleaning solution. Be sure none remains in the bin.

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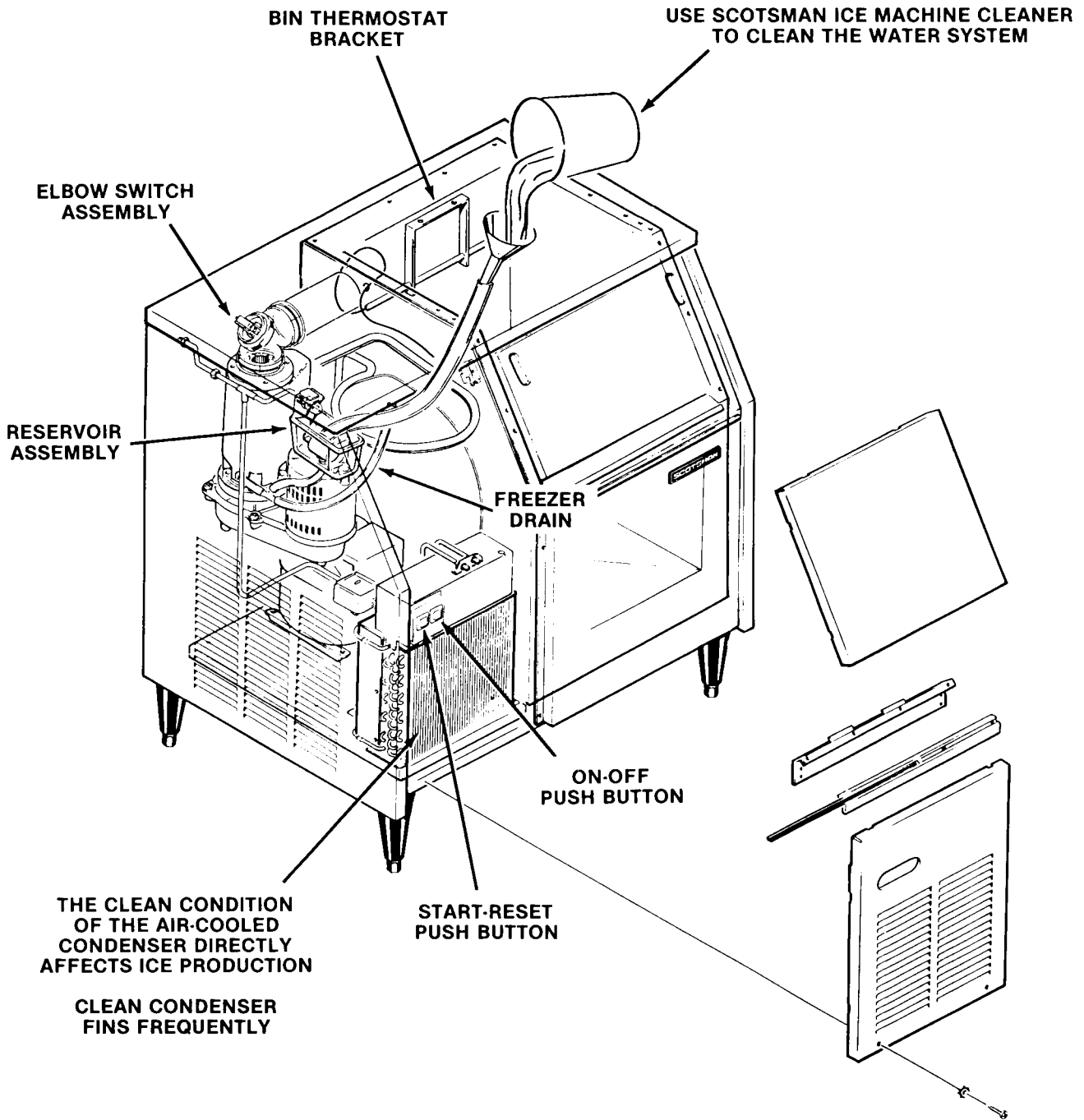
17. Remove all ice from the ice storage bin.
18. Add warm water to the ice storage bin and thoroughly wash and rinse all surfaces within the bin.
19. Clean and sanitize the ice storage bin each week.

NOTE

Cleaning requirements vary according to local water conditions and individual user operation. Visual inspection of the auger before and after cleaning will indicate frequency and procedure to be followed in local areas.

When doubtful about the clean condition of the auger, refer to the removal and replacement of the auger, water seal, o-ring, ice breaker assembly and freezer assembly to inspect the auger condition and the water seal condition.

PO760 MAINTENANCE & CLEANING INSTRUCTIONS



PO760 MAINTENANCE & CLEANING INSTRUCTIONS

WARNING

SCOTSMAN Ice Machine Cleaner contains Phosphoric and Hydroxyacetic acids. These compounds are corrosive and may cause burns. If swallowed, DO NOT induce vomiting. Give large amounts of water or milk. Call Physician immediately. In case of external contact flush with water. KEEP OUT OF THE REACH OF CHILDREN.

SANITIZING

Sanitizing is an important phase of the icemaking and dispensing operation. The following sanitizing procedure should be performed after every repair or replacement of parts in the Icemaker/Drink Dispenser. Additional requirements for performing the sanitizing procedure should be followed in accordance with the requirements of the local Health Authorities.

WARNING

Read WARNING thoroughly BEFORE preparing sanitizing solution, in next step.

1. STERILEX 3-Q SANITIZING TABLETS

DANGER: KEEP OUT OF REACH OF CHILDREN. Tablets may be skin irritation or eye damage. Avoid prolonged skin contact. Do not get in eyes. In case of contact, flush with plenty of water. If irritation persists get medical attention. Avoid contamination of food.

FIRST AID: If tablets are swallowed, drink promptly a large quantity of milk, egg whites or gelatin solution. Avoid alcohol.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed. Rinse empty carton container thoroughly with water and discard. Always follow your health department regulations.

2. MIKRO-QUAT

DANGER: Causes high damage and skin irritation. Do not get in eyes, or skin, or on clothing. Protect eyes when handling concentrated product. Harmful if swallowed. Avoid contamination of food.

FIRST AID: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. For eyes, call a physician. Remove and wash contaminated clothing before reuse. If swallowed, drink promptly a large quantity of milk, egg whites or gelatin solution or if these are not available, drink a large quantity of water. Call a physician immediately.

*Sterilex 3-Q sanitizing tablets are distributed by Pittsburgh Chemical Laboratory, Inc., Pittsburgh, PA 15222, and may be obtained through most restaurant supply houses.

NOTE

Contact your Local Health Authorities and obtain their approval of the sanitizer you intend to use when sanitizing the Icemaker/Drink Dispenser.

Prior to performing the sanitizing procedure, it is assumed the cleaning procedure has been performed.

1. Prepare a sanitizing solution using a quaternary ammonium sanitizing compound.

NOTE

Carefully follow directions and observe all precautions on the sanitizing and compound container.

One *Sterilex 3-Q sanitizing tablet per three quarts of water yields 200 ppm active quaternary; or, one-third ounce of *Mikro-Quat to one gallon of water yields 235 ppm active quaternary.

The taste of ice and water will not be affected by the sanitizing of parts using the above mixed sanitizing solutions. Rinsing of part is not required with this relatively mild solution, but air drying of the parts is suggested before reassembly.

2. Immerse all parts, earlier removed and cleaned, in the sanitizing solution; or, if too large for the container of sanitizing solution, thoroughly wash the solution over all surfaces of all parts.
3. Drain all parts and allow to air dry.
4. Pour some of the sanitizing solution into the bin drain and the sink assembly drain.
5. Reassemble all air-dried parts in the Icemaker/Drink Dispenser.
6. Restore electrical power ON, water pressure ON, and pre-mix syrup and CO₂ pressure ON.
7. Replace all covers, doors and panels earlier removed.
8. Clean and sanitize the faucet assemblies and the bin interior and surfaces each week.

*Mikro-Quat, is manufactured by Economics Laboratory, Inc., Osborn Building, St. Paul, MN 55102, and may be obtained from them through their Magnus Division, The Klenzade Division, or from restaurant supply houses.

PO760 SERVICE DIAGNOSIS

The following charts list corrective actions for the causes of known symptoms of certain problems that can occur.

INTRODUCTION

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Water Leaks.	Defective water seal.	Replace seal.
	Gravity feed line leaking.	Check hose clamp.
	Water level in reservoir too high.	Adjust water level to molded line on the float assembly.
	Storage bin drain and connecting fittings.	Check and repair.
Excessive noise or chattering.	Mineral or scale deposit on auger and inner freezing chamber walls.	For severe deposit, remove and manually polish auger, sand inner chamber walls of freezer barrel.
		For lighter concentration, use Scotsman Ice Machine Cleaner periodically.
	Intermittent water supply.	Check and clean water strainer.
		Check gravity feed line for air lock.
		Check to be sure float orifice is not restricted
	Water level in reservoir too low.	Check incoming water supply.
		Remove air lock.
	Gear reducer loose on frame.	See CORRECTION for Water Leaks above.
	Motor compressor not solid on rubber mounts.	Tighten gear reducer.
	Gearmotor thrust bearing worn.	Repair or replace rubber mounts.
Top bearing worn.	Check/replace bearing.	
Water interruption.	Check/replace breaker.	
Drivemotor makes high pitched noise.	Check for frozen water inlet to freezer.	
	Rotor bearing dry or worn.	Replace motor or bearing.
	Dry grease seal under rotor bearing.	Grease seal.

PO760 SERVICE DIAGNOSIS

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Making wet ice	Back pressure too high. Faulty compressor.	Overcharge of refrigerant, faulty compressor or high head pressure. Lower pressure as indicated. Replace compressor.
Low ice production.	Loss of refrigerant. Under or over-charge of refrigerant. Dirty or plugged condenser. Low water level in water reservoir. Partial restriction in capillary tube or drier. Inlet water strainer partially plugged. Corroded or stained auger due to water condition.	Check and recharge. See NAMEPLATE for charge correction. Clean condenser. See CORRECTION for water leaks above. Moisture in system. Overcharge of oil in system. Remove charge by blowing back through cap tube. Replace drier evacuate and recharge. Remove screen and clean. Remove auger and clean, or use Scotsman Ice Machine Cleaner. See Maintenance Section.
Gearmotor noise.	Low on oil.	Remove case cover to check for proper oil level. See Removal and Replacement Section for gear motor.
Icemaker will not operate.	Blown fuse in line. Bin thermostat set too high. Loose electrical connection. Switch in OFF position. Inoperative master switch. Off on manual-reset pressure control. (Water-Cooled) Low supply water pressure.	Replace fuse and check for cause of blown fuse. Replace thermostat. Check wiring. Set switch to ON position. Replace switch. Reset. Check for water interruption. Restore water pressure.

PO760 SERVICE DIAGNOSIS

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Icemaker continues to operate with full storage bin.	Bin thermostat not properly set or is defective.	Re-set or replace bin thermostat. Re-set to 35-degrees cut-out, 45-degrees cut-in.
Compressor cycles intermittently.	Low voltage.	Check for overloading.
	Dirty condenser.	Clean condenser.
	Air circulation blocked.	Remove cause or move unit.
	Inoperative condenser fan motor.	Replace motor.
	Non-condensable gases in system.	Check for gas leaks, evacuate and recharge.
	Bin thermostat differential too small causing short cycling.	Replace bin thermostat.
	Low on refrigerant causing low pressure control to cycle.	Check for leaks.
Icemaker operates but makes no ice.	Loss of undercharge of refrigerant.	Check for leaks and recharge. See NAMEPLATE for correct charge.
	Water not entering freezing chamber.	Plugged strainer or supply line. Check and clean. Air lock in gravity feed line. Check and remove air lock. Water interruption, freezer inlet frozen shut.
	Moisture in system.	Check, evacuate, replace drier. Recharge, See NAMEPLATE for correct charge.
	Water seal leaking.	Replace seal.
	Drivemotor stripped.	Repair or replace drivemotor

PO760 SERVICE DIAGNOSIS

CARBONATION SYSTEM

SYMPTOM	POSSIBLE CAUSE	CORRECTION
No carbonated water, pump does not operate.	<p>Check voltage. Motor burnt out. Liquid level control. Bad bearings causing pump to stop. Tank electrode shorted. Pump jammed.</p>	<p>Restore voltage. Replace pump. Check wiring. Repair or replace motor. Repair or replace electrode. Check for foreign particles in pump housing, clean or replace pump.</p>
No carbonated water (pump operates)	<p>Check CO₂ Cylinder empty. Pump rotating backwards. Open in transformer, relay coil, on high level electrode. Worn pump. Pump check valve leaks. Pump bypass valve opens too soon. Clogged filter or inlet screen. Water line blocked.</p>	<p>Replace Cylinder. Reverse wiring inside motor. Repair or replace faulty part. Replace pump. Clean or replace check valve. Clean, valve is adjustable, set higher; or replace bypass valve. Clean or replace filter or screen. Check for defective washer at fittings or plugged check valve on tank.</p>
Flat carbonated water.	<p>CO₂ Gas drum empty or low. CO₂ Gas turned OFF. Regulator set too low. CO₂ Gas line plugged by swollen washer. Water pressure too high.</p>	<p>Replace CO₂ drum. Turn CO₂ gas ON. Increase pressure. Replace washer. Adjust if possible or install water pressure regulator.</p>
Metallic taste in Carbonated water.	<p>Carbonated water backing up into city water line. Carbonated water line connect by mistake to brass or copper lines.</p>	<p>Clean water back-pressure check valve, replace washer. Make proper connection using approved tubing. Use proper beverage tubings.</p>
Carbonated water off taste.	<p>Oil, dirt or grease inside carbonator. Oil or pipe dope in water lines. Tainted CO₂ gas. Water filter needed or filter element bad.</p>	<p>Clean carbonator. Clean and flush water lines. Sniff CO₂ gas at drum head to determine if CO₂ drum should be replace. Install a good waste filter or replace filter element.</p>

PO760 SERVICE DIAGNOSIS

CARBONATION SYSTEM (Continued)

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Gas only flows from dispenser valve.	Water Valve CLOSED. Pump motor not cutting on.	OPEN water valve. Check liquid level control. Check carbonator tank electrode.
Carbonator fills with water.	Water pressure too high. CO ₂ gas pressure too low. CO ₂ gas drum empty. Open in transformer, relay coil, or high level electrode.	Adjust if possible, or install pressure reducer. Set regulator key to deliver proper gas pressure. Replace CO ₂ drum. Repair or replace defective part.
Carbonated water backs up into city water line.	Dirty or worn back-pressure check valve.	Clean or replace valve seats.
Excessive pumping.	Closed water supply valve. Water supply (building or city) shut off. Automatic switch out of order. Water inlet screen clogged. Pump inlet or check valve out of order. Swollen washers in hose couplings obstruct flow of water. Tank electrode shorted.	Open valve. Re-establish source. Check switch, replace if necessary. Remove and clean screen. Repair or replace. Replace washers. Repair or replace.
Carbonator pump pounds, water running in spurts.	Air in pump. Water valve CLOSED. Filter or strainer plugged. Inlet line too small.	Vent pump. OPEN water valve. Clean or replace filter-strainer. Replace with 3/8-inch or larger copper line.
Milky carbonated water.	Air in carbonator. Pump sucking air.	Vent carbonator. Check for loose fittings. Replace pump.

PO760 SERVICE DIAGNOSIS

DISPENSING SYSTEM (Continued)

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Drink not sweet enough, excessive soda or water to syrup ratio (light drink).	Syrup solenoid coil defective. Defective syrup solenoid coil connection.	Replace coil. Check and correct connection.
	Carbonator pressure too high. Obstruction in syrup line.	Check and correct pressure. Check transparent block to see if there is any obvious obstruction. Back flush. Remove and clean syrup plunger and solenoid coil housing.
	Water pressure too high. Drink will also have low carbonation.	Add regulator in water inlet line.
Foaming of finished drink.	Over carbonation of soda.	Reduce CO ₂ pressure on carbonator.
	Carbonation of syrup.	Reduce CO ₂ pressure on syrup. Some root beers will foam when their CO ₂ pressures are above 15 psi. Larger sized syrup may be required for long runs.
	Dirty lines, valves, etc.	Backflush. Remove and clean syrup plunger and solenoid coil housing.
	Super cooled ice in drink. Product temperature too high.	Use ice at about 32 degrees F. Product temperature must be below 42-degrees F.
	Pressure too high.	Reduce CO ₂ pressure to recommended setting.
Drink too sweet, insufficient soda or water to syrup ratio (heavy drink)	Soda solenoid coil defective. Defective soda solenoid coil connection.	Replace coil. Check and correct connection.
	A non-carbonated faucet may be in a high carbonated faucet application.	Replace with correct faucet.
	Insufficient soda flow due to low carbonator pressure.	Check CO ₂ supply pressure and replace tank if CO ₂ pressure is low and/or reset regulator as required.
	Obstruction in water and/or soda line.	Check out line.
	Water shut-off valve partially closed.	Check and open freely.
	Syrup pressure too high.	Check and reset low pressure regulator.

PO760 SERVICE DIAGNOSIS

DISPENSING SYSTEM

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Syrup or water drips through spout.	Foreign matter on plunger seat.	Operate faucet several times to flush out. Remove plunger from solenoid valve and clean valve port and plunger seat. Back flush valve.
	Nick or cut on plunger seat. Broken or defective plunger spring.	Remove plunger and replace. Remove spring and replace.
Faucet continues to dispense even when lever is not actuated.	Lever is sticking.	Clean syrup from lever and lubricate with petroleum jelly.
	Electric switch defective. Plunger stuck.	Replace switch. Replace spring and/or clean solenoid housing. Back flush valve.
Noisy solenoid valve.	Dirt or particles in back of plunger.	Operate faucet several times to flush out. Back flush. Remove and clean plunger and solenoid housing.
Actuation of lever results in no flow.	Defective switch.	Replace switch.
	Bad solenoid coil and connection. Power OFF. Low voltage.	Check and correct connection. Check circuit and fuse for power ON. Voltage at coil should be 100 volts on 115 VAC line. If voltmeter not available, turn off all lights and other electrically operated devices to check under best conditions at that location.
Inconsistent brixing.	Dirty lines, valves, etc.	Backflush. Remove and clean syrup plunger and solenoid coil housing.
	CO ₂ supply low. Leak in CO ₂ line.	Renew CO ₂ cylinder. Locate and correct.

NOTE: In new installations, objectionable taste or odor, foaming and inconsistent brixing may be the result of contaminants such as oils or pipe sealing compounds. Thoroughly clean all lines prior to installing and back flush are required.

PO760 ADJUSTMENT PROCEDURES

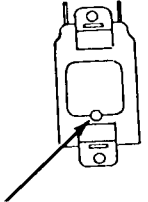
ADJUSTMENT OF THE BIN THERMOSTAT CONTROL

(Installations 2,000 feet above sea level only)

The control for the bin thermostat is the temperature control, located on the upper part of the retainer wall.

ALTITUDE CORRECTION (ROBERTSHAW ONLY)

ALTITUDE	TURNS C.W.
2,000	40°
4,000	78°
6,000	115°
8,000	148°
10,000	180°



TURN RANGE SCREW

CAUTION

The adjusting screw on the temperature control device has a very sensitive response to adjustment. DO NOT attempt to adjust the screw until after thoroughly reading and understanding the instructions and illustrations. Over-adjusting or erratic guessing, can foul the instrument and cause ultimate delay and part replacement, WHICH COULD HAVE BEEN PREVENTED.

ADJUSTMENT OF THE LEG LEVELERS

When the icemaker is installed with legs, the legs must be adjusted to level the cabinet. The cabinet must be leveled in the front-to-back and side-to-side directions. This adjustment should be performed during initial installation of the cabinet and anytime the cabinet is moved from the original location to another site.

- Using a 1-1/8" open-end wrench, and a carpenter's bubble level, rotate the threaded leveler in each leg to RAISE or LOWER the cabinet until the cabinet is level in the front-to-back direction.
- Repeat step A, for leveling in the side-to-side direction.
- Recheck both the front-to-back and the side-to-side leveling and repeat adjustments, as necessary.

ADJUSTMENT OF THE WATER REGULATOR ASSEMBLY

The correct head pressure on water-cooled models is 135 PSIG. Adjustments can be performed on the water regulator assembly to increase or decrease the head pressure.

To adjust the water regulator assembly:

- To INCREASE the head pressures: Rotate the adjusting screw, on the water regulator assembly COUNTER-CLOCKWISE.
- To DECREASE the head pressure: Rotate the adjusting screw, on the water regulator assembly CLOCKWISE.

ADJUSTMENT OF THE WATER RESERVOIR FLOAT

The correct water level in the water reservoir should be at the level of the raised molded line, on the side of the body of the water reservoir. When the water line level is above or below the raised molded line, adjustment can be performed to raise or lower the water level by bending the metal arm of the float inside the water reservoir.

To adjust the water reservoir float:

- To RAISE the water level: Hold one end of the metal arm of the float and slightly bend the float up.
- To LOWER the water level: Hold one end of the metal arm of the float and slightly bend the float DOWN.
- To perform MAJOR adjustment: When repair or replacement has been performed and the water level line between the water reservoir and the freezer assembly has been substantially altered:
 - Loosen the three screws and lockwashers which attach the reservoir bracket and water reservoir to the freezer mount.
 - Move the reservoir bracket UP or DOWN to properly position the water line level within the freezer. The proper water level within the freezer is 1/2" - 3/4" below the top of the auger.
 - When proper water level within the freezer is adjusted, re-tighten screws attaching the water reservoir bracket to the freezer mount.

PO760 ADJUSTMENT PROCEDURES

ADJUSTMENT OF CO₂ GAS PRESSURE

Two areas of CO₂ gas pressure require checks and adjustments to properly maintain the correct amounts and pressures for best soda dispensing operation, the CO₂ high pressure, through the CO₂ high pressure regulator, for the carbonator tank operation, and the CO₂ low pressure regulator for the CO₂ gas pressure, used to force syrup from syrup tanks to the dispensing faucet. When either pressures are above or below normal operating pressures, adjust as detailed in the following procedures.

To adjust the CO₂ Gas Pressure:

A. CO₂ High Pressure — TO INCREASE:

Rotate the adjusting key on the CO₂ high pressure regulator **CLOCKWISE**, and observe the indicator needle on the gauge moving to an increased pressure indication.

NOTE

*CO₂ gas pressures from 80 to 120 PSIG will provide satisfactory carbonator operation. If rotating the adjusting key does not increase pressure, rotate the regulator outlet valve **COUNTERCLOCKWISE** to **OPEN**, and observe the indicator needle on the gauge moving to an increased pressure indication. When no increase in pressure occurs with this adjustment, the CO₂ gas cylinder must be **EMPTY**. Replace the empty CO₂ gas cylinder with a **FULL** CO₂ gas cylinder.*

B. CO₂ High Pressure — TO DECREASE:

Reverse the TO INCREASE procedure above.

C. CO₂ Low Pressure — TO INCREASE:

Rotate the adjusting key on the CO₂ low pressure regulator **CLOCKWISE**, and observe the indicator needle on the gauge moving to an increased pressure indication.

NOTE

*CO₂ gas pressures from 15 to 20 PSIG will provide satisfactory pressures to force syrup from the syrup tanks to the dispensing faucet. If rotating the adjusting key does not increase pressure, rotate the regulator outlet valve **COUNTERCLOCKWISE** to **OPEN**, and observe the indicator needle on the gauge moving to an increased pressure indication. When no increase in pressure occurs with this adjustment, the CO₂ gas cylinder must be **EMPTY**. Replace the empty Co₂ with a **FULL** CO₂ gas cylinder.*

D. CO₂ Low Pressure — TO DECREASE:

Reverse the TO INCREASE procedure above.

ADJUSTMENT OF THE DRINK TOWER FAUCETS

The metering screws for syrup and water are located on the rear underside of the faucet, behind the pouring spout. The metering screw for **WATER** is located on the **LEFT**, and is marked **W**. The metering screw for **SYRUP** is located on the **RIGHT**, and is marked **S**.

The metering screws have sensitive adjustment, therefore rotate no more than one-eighth of a turn at a time.

To Adjust the Drink Dispenser Faucet:

- A. To **INCREASE** Flow: Rotate appropriate metering screw **OUT** or **COUNTERCLOCKWISE**, one-eighth of a turn.
- B. To **DECREASE** Flow: Rotate appropriate metering screw **IN** or **CLOCKWISE**, one-eighth of a turn.

PO760 REMOVAL AND REPLACEMENT PROCEDURES

SLIDE OUT CHASSIS PROCEDURE

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.

//////////////////// **WARNING** //////////////////////

Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

////////////////////

2. Close the inlet water valve to the icemaker.
3. Remove two screws and the lower left front panel.
4. Remove plastic trim, screws, aluminum trim.
5. Remove screws and left front bracket. Remove upper front left panel. Disconnect the water inlet line. Point A.
6. Remove screws and control box cover to gain access and disconnect and remove from the control box the building source electrical connections.

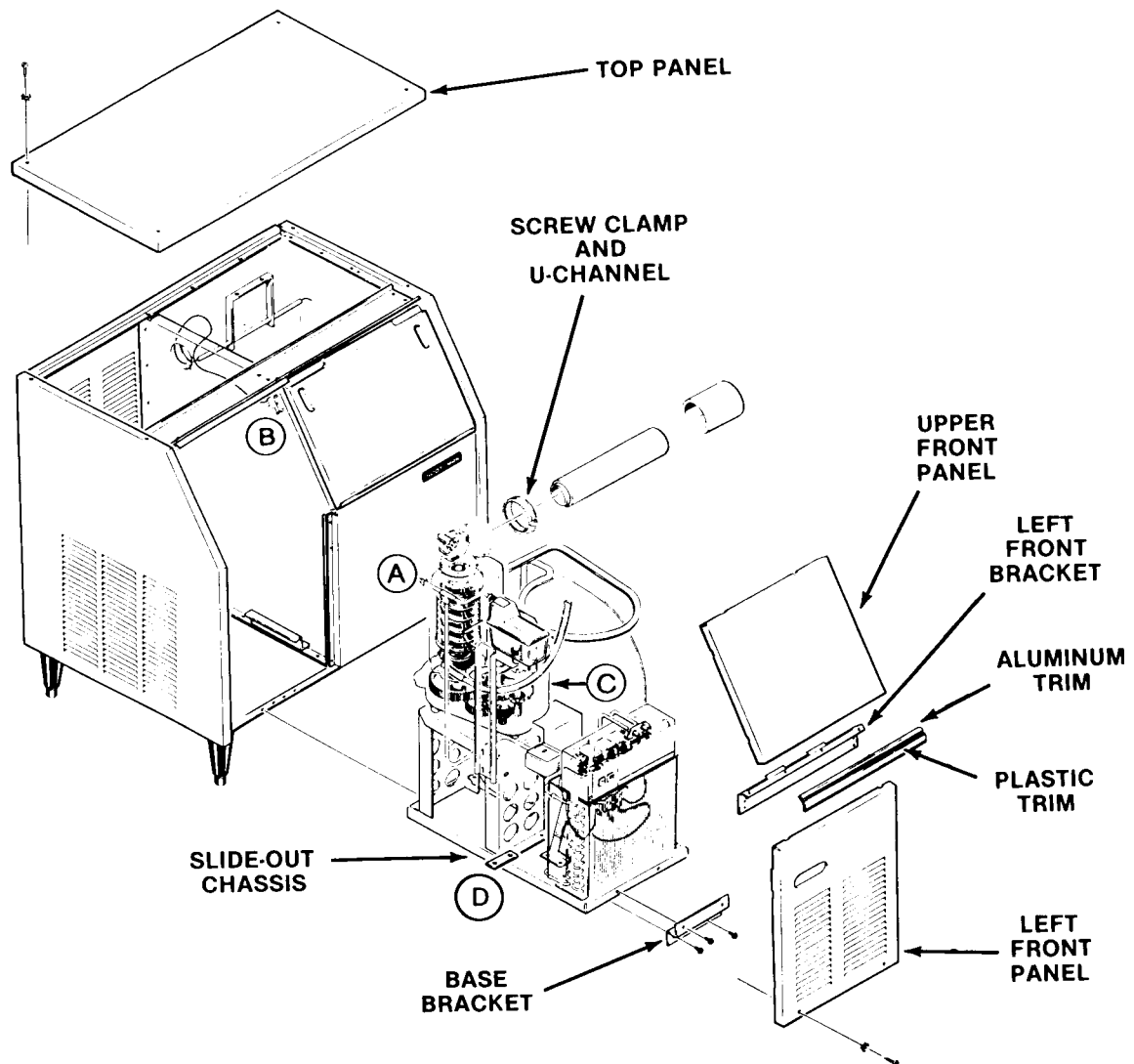
7. Loosen the screw on the screw clamp and U-channel securing the ice transport tube to the elbow and safety switch and separate the ice transport tube from the elbow.

8. Remove wire leads from the bin thermostat. Point B.

9. Water-cooled models must be disconnected at the water-cooled condenser inlet and outlet connections. (Inside cabinet).

10. Remove Corbin clamp and remove reservoir overflow drain tubing from the reservoir and drip pan. Point C.

11. For partial chassis removal, remove two screws and remove base to base bracket located on the lower chassis front and pull chassis out to service. For complete removal, remove chassis stop. Point D.



PO760 REMOVAL AND REPLACEMENT PROCEDURES

PO760's have been manufactured in "A", "B" and "C" Models (as in model PO760AE-1A vs. PO760AE-1C.) The following instructions are designated for either "A", "B" or "C" models. Be certain to check your model number and refer to the appropriate steps.

Read the instructions thoroughly before performing any Adjustment or Removal and Replacement Procedures.

////////// WARNING //////////

Be sure the electrical power supply and the water supply are OFF, BEFORE starting any of the following REMOVAL AND REPLACEMENT procedures as a precaution to prevent possible personal injury or damage to equipment.

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REMOVAL AND REPLACEMENT OF THE AUGER, WATER SEAL, O-RING, ICE BREAKER ASSEMBLY AND FREEZER ASSEMBLY (A, B and C MODELS)

To remove the auger, water seal, o-ring and ice breaker assembly:

1. Shut off water supply to the icemaker/dispenser at the building source.
2. Disconnect or shut-off electrical power to the icemaker at the building source.
3. Perform steps from slide-out chassis procedure page and pull the chassis out for servicing.
4. Remove three socket head screws and spout retaining brackets from the end of the spout assembly at the top of the freezer assembly.
5. Lift the elbow safety switch and spout UP, off of the freezer assembly.
6. Retain the o-ring for replacement during reassembly. Inspect for cuts, tears or excessive wear, causes for replacement.
7. Remove four capscrews, lockwashers and the ice breaker assembly from the top of the freezer assembly.

NOTE: To service icebreaker only, go to steps 21-24.

8. Retain the o-ring for replacement during reassembly. Inspect for cuts, tears or excessive wear, causes for replacement.
9. Remove hose clamp and disconnect the water feeder tube from the reservoir, at the freezer to drain the reservoir and freezer of water.

10. Remove the auger. If necessary a bolt can be threaded into the top end of the auger from the freezer and a hand tool used to pull on the bolt to remove the auger.

To remove Water Seal only, omit steps 12, 13, and 14.

TO REMOVE FREEZER ASSEMBLY:

11. Pull back permagum around freezer base mounting bolts and remove four screws and flatwashers. Separate the freezer assembly, gasket and adapters, from the drivemotor assembly.
12. Bleed off or blow the refrigerant charge through the Schrader valve.
13. Unsolder and disconnect the refrigerant suction line at the compressor, and the associated capillary line at the drier.
14. Remove the freezer assembly from the chassis.

A and B MODELS

15. Using a suitable length and size wooden dowel or stick inserted through the top of the open freezer assembly, tap the stationary piece water seal out the bottom of the freezer assembly.

C MODEL

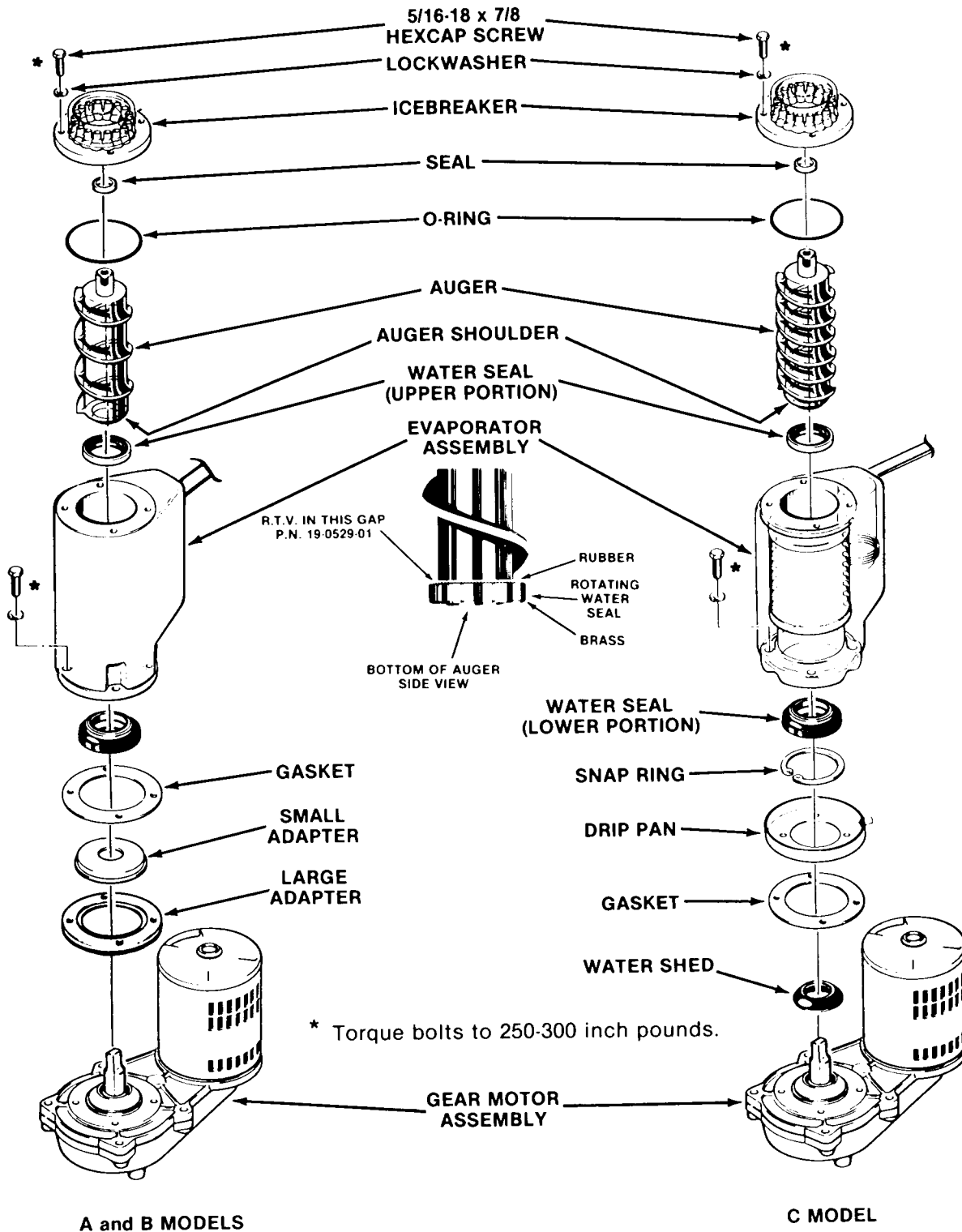
15. Remove snap ring from inside bottom of evaporator assembly. Using a suitable length and size of wooden dowel or punch inserted through the top of the open freezer assembly, tap the stationary portion of the water seal out the bottom of the freezer assembly.
16. Replace the water seal any time it has been removed.

////////// CAUTION //////////

The lower two-part water seal is a precise seal and fitting. Any damage or wear will cause a failure. It is recommended that the lower two-part water seal be replaced any time there is a question of condition.

////////////////////////////////////

PO760 REMOVAL AND REPLACEMENT PROCEDURES



PO760 REMOVAL AND REPLACEMENT PROCEDURES

A and B MODELS

17. Replace the parts starting with the stationary part of the water seal. Carefully inspect it prior to assembly. Insert this half of the water seal into the bottom of the freezer. Then insert the brass freezer adapter into the bottom of the freezer tube and push it in as far as it will go.

C MODEL - OR REPLACEMENT FREEZER

17. Replace the new stationary portion of the two-part water seal in the bottom of the freezer assembly and press in far enough to install the snap ring. **IMPORTANT:** pull water seal back down against snap ring all the way around the freezer.

A and B MODELS

18. Mount the freezer and gasket to the gear motor case. Be certain that the gearmotor is in good working condition and that the large plastic adapter is in place on the gearbox.

C MODEL - OR REPLACEMENT FREEZER

18. Mount the freezer, drip pan and gasket to the gearmotor case. Check to be sure the gearmotor is in good condition and the water shed is in place around the output shaft.
19. Apply Scotsman part number 19-0529-01 RTV silicone rubber to the auger shoulder before pushing on the water seal. Place just enough silicone on to the auger, so that when the water seal is placed on the auger, the gap between the auger shoulder and water seal is completely filled with silicone.

The silicone must be allowed to "set-up" or dry on the surface before any water can be added to the freezer.

CAUTION

If any silicone gets onto the mating surfaces of the water seal, the seal is ruined, and cannot be used.

20. Install auger.

21. Remove vent screw from brass plug to provide pressure relief during assembly and carefully place the breaker bearing assembly onto the auger. This new seal fits the auger shaft very tightly and it will go onto the auger with some resistance. Be very careful to push it straight onto the auger as tipping or angling of the breaker could damage the seal lip.

22. Install the vent screw with rubber washer into the breaker plug. Use a small drop of Loctite 680 on the screw threads.

23. Bolt the breaker back onto the freezer assembly and test the unit.

24. Reassemble ice transport tube, insulation, and bin top assembly in reverse order of disassembly.

CAUTION

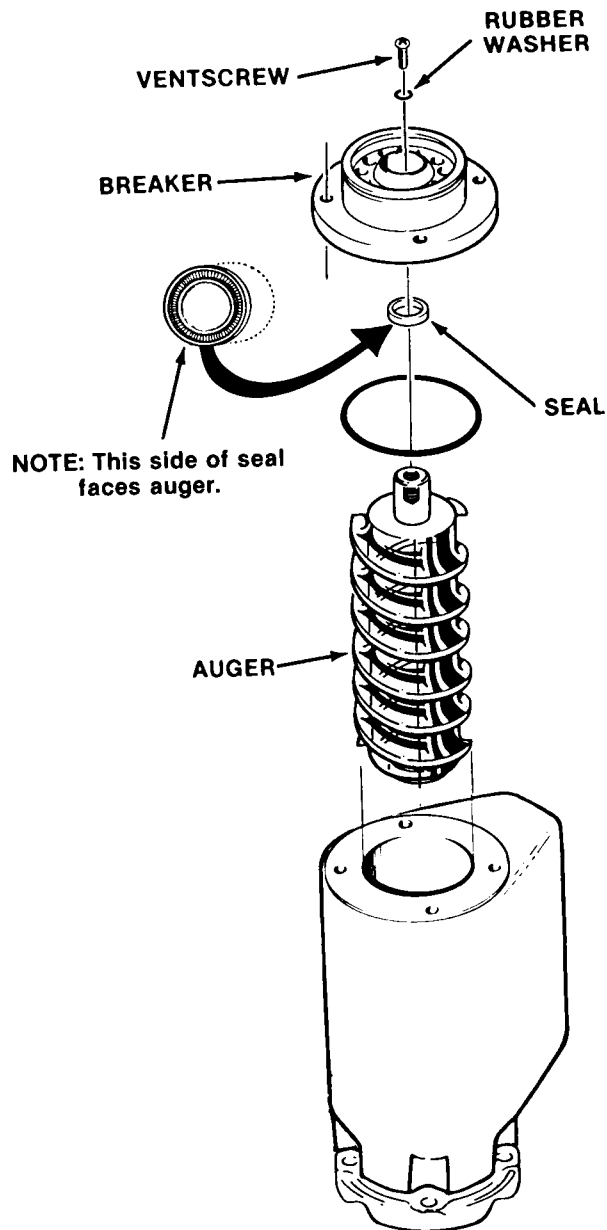
DO NOT force the auger and breaker together without having the vent hole open because pushing the breaker on with no air relief will cause the internal air pressure to force the grease seal away from the breaker.

PO760 REMOVAL AND REPLACEMENT PROCEDURES

//////////////////// CAUTION //////////////////////

DO NOT force the auger and breaker together without having the vent hole open because pushing the breaker on with no air relief will cause the internal air pressure to force the grease seal away from the breaker.

////////////////////////////////////



PO760 REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE ELBOW AND SWITCH ASSEMBLY

To remove the elbow and switch assembly:

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.

//////////////////// **WARNING** //////////////////////

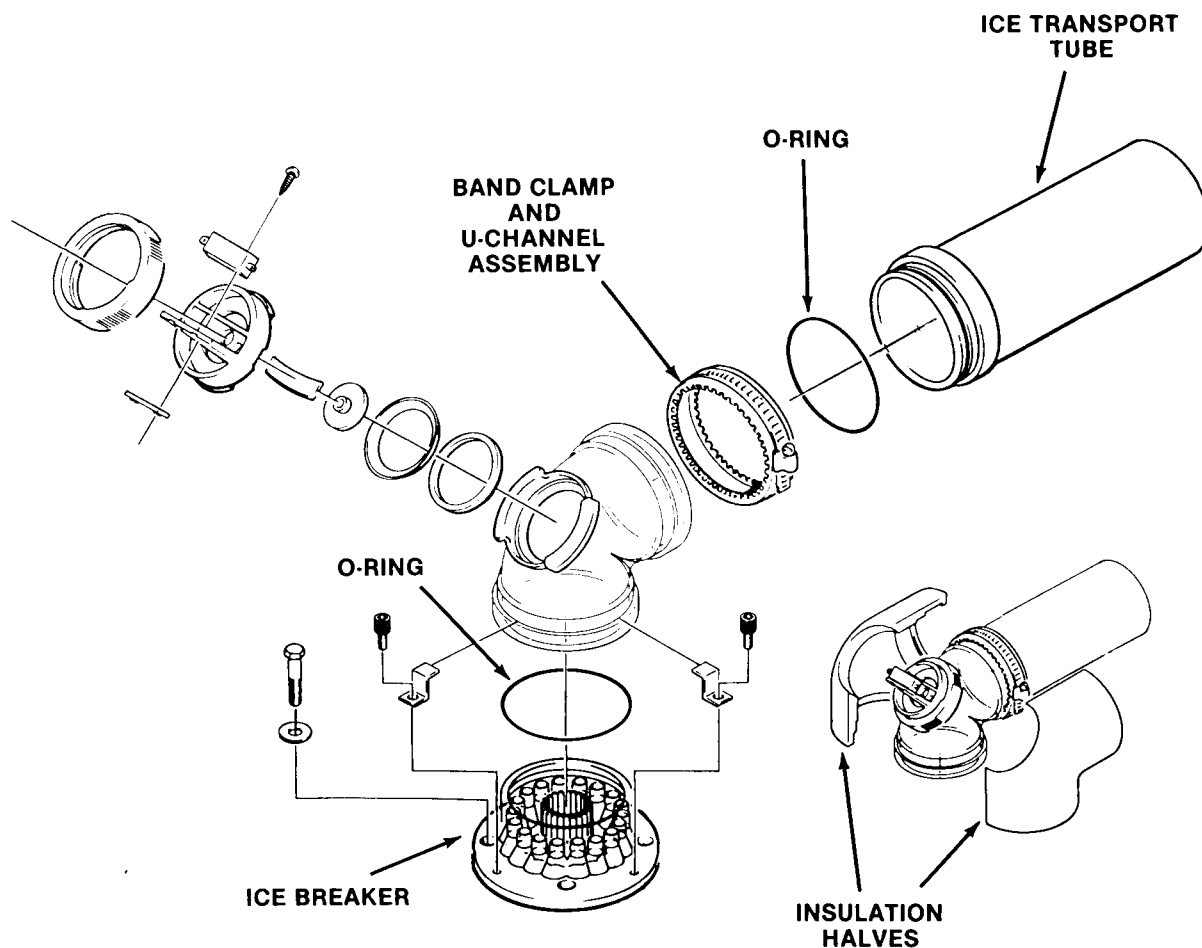
Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

////////////////////////////////////

2. Remove screws and remove top panel.
3. Remove insulation halves from the elbow switch assembly.
4. Loosen the screw on the screw clamp and U-channel securing the ice transport tube to the elbow and safety switch.
5. Separate the ice transport tube from the elbow.

6. Remove bolt and washer and remove switch support from the ice breaker.
7. Remove three Allen head screws and spout retaining brackets from the freezer assembly and elbow and switch assembly.
8. Lift the elbow and switch assembly UP to clear the top of the freezer assembly.
9. Remove screws and the switch from the switch actuator housing.
10. Rotate the retainer ring 90-degrees to unlock the retainer ring and the switch actuator housing from the elbow assembly and separate the parts from the elbow.
11. Inspect the rubber diaphragm for cuts, tearing or excessive wear.

To replace the elbow and switch assembly, reverse the removal procedure.



PO760 REMOVAL AND REPLACEMENT PROCEDURES

//////////////////// WARNING //////////////////////

Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

////////////////////////////////////

REMOVAL AND REPLACEMENT OF THE CARBONATOR PUMP AND MOTOR

To remove the carbonator pump and motor assembly:

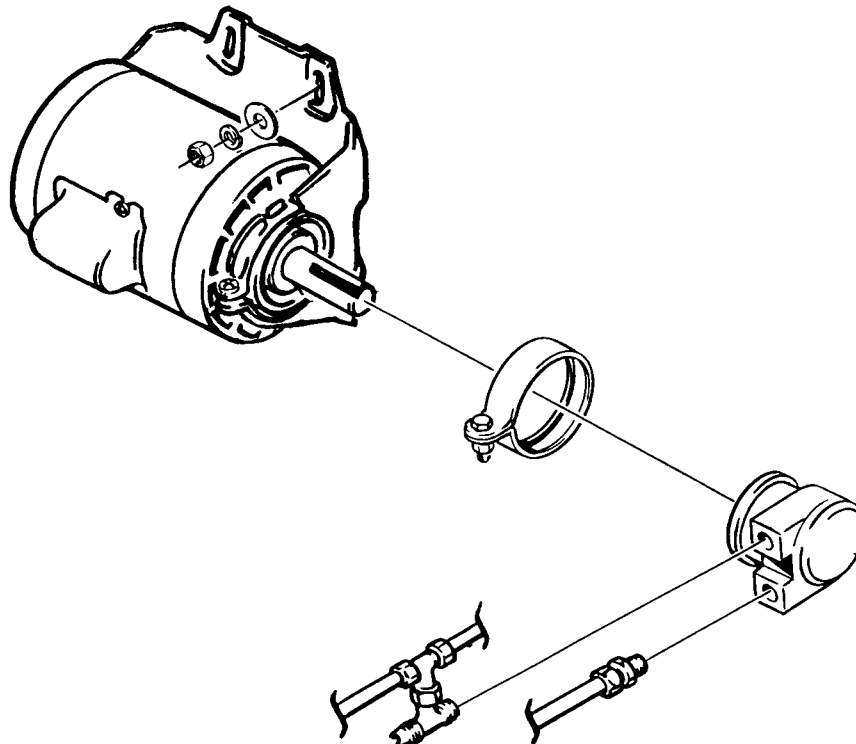
1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove two screws and the lower left front panel.
4. Remove trim, screws and left front bracket. Remove upper left panel.
5. Close CO₂ tank valve and release pressure at the relief valve located on the top of the carbonator tank.

//////////////////// CAUTION //////////////////////

BEFORE removing the three water lines in the next step, **SLOWLY** unscrew the connection of the line from the pump to the carbonator tank, which is under pressure, and carefully bleed off the water pressure.

////////////////////////////////////

6. Disconnect the three water lines connected to the pump.



//////////////////// CAUTION //////////////////////

BEFORE the next step, be prepared to support the pump and motor, and the mounting bracket, or have an assistant helping during the removal, to prevent dropping the motor and causing possible personal injury or damage to the equipment.

////////////////////////////////////

7. Remove hex nuts, lockwashers and remove pump motor and pump from the cabinet.
8. Loosen two screws on the cover plate to the electrical connections, located on the end of the motor toward the back of the chassis. Rotate the cover plate to OPEN.
9. Disconnect the two electrical leads from terminals on the motor.

To replace the carbonator pump and motor assembly, reverse the removal procedure.

PO760 REMOVAL AND REPLACEMENT PROCEDURES

////////// WARNING //////////

Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

////////////////////////////////////

REMOVAL AND REPLACEMENT OF THE CARBONATOR PUMP

To remove the carbonator pump:

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker.
3. Remove two screws and the lower left front panel.
4. Remove plastic trim.
5. Remove trim, screws and left front bracket. Remove upper front left panel.

////////// CAUTION //////////

BEFORE removing the three water lines in the next step, SLOWLY unscrew the connection of the line from the pump to the carbonator tank, which is under pressure and carefully bleed off the water pressure.

////////////////////////////////////

6. Disconnect the three water lines connected to the pump.
7. Remove the screw and the coupling clamp and separate the pump from the motor.
8. Remove the elbow and the tee from the pump.

To replace the pump:

1. Using teflon tape, wrap the threaded end of the connection fittings to be connected to the pump.
2. Install the connection fittings in the pump in the original openings and positions.
3. Fit the coupling clamp over the end of the pump.
4. Insert the shaft of the pump into the slot in the motor to install the pump on the motor.

NOTE

When securing the pump to the motor with the coupling clamp:

Fit the clamp on the ridges on the pump and motor bodies.

Be sure the screw holes in the clamp are on top.

With the thumb and forefinger of one hand, cup the bottom of the clamp and force the clamp up and around the bodies of the pump and motor, for a close fit toward the top of the clamp.

Tighten the clamp screw with a screwdriver, by hand. Tighten only until tight enough that the pump CANNOT be rotated by hand, on the motor. DO NOT USE POWER OR AIR TOOLS.

A small 3/16-inch wide bladed screwdriver is large enough. Further tightening may cause loud squealing noises from the pump or motor during operation.

5. Connect the three water lines to the pump.
6. Replace the panels and trim.

REMOVAL AND REPLACEMENT OF THE CARBONATOR TANK ASSEMBLY

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Close the inlet water valve to the icemaker, and shut off the CO₂ supply tank.
3. Remove two screws and the lower left front panel.
4. Remove plastic trim.
5. Remove trim, screws and left front bracket. Remove upper front left panel, slide chassis assembly out. The top may be loosened to gain access to the carbonator tank also. Remove the four screws and turn the top panel to expose the carbonator tank.
6. Slowly pull the ring and lift the body of the relief valve, on the top of the carbonator tank and bleed off CO₂ gas pressure.
7. Tag and disconnect the three product lines at the top of the carbonator tank assembly.
8. Tag or identify for replacement, then disconnect three electrical leads from the carbonator electrode that are attached to terminals on the liquid level control inside of the control box.
9. Remove the strap that holds the carbonator tank to the bracket. Remove the carbonator tank from the cabinet.

To replace the carbonator tank assembly, reverse the removal procedure.

PO760 REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF A CO₂ GAS CYLINDER (DRUM)

To remove a CO₂ gas cylinder (Empty):

1. CLOSE CO₂ gas cylinder head valve.
2. CLOSE CO₂ regulator outlet valve.
3. Disconnect CO₂ regulator from the CO₂ gas cylinder. Gauge should drop to ZERO.
4. Install outlet cap on threaded outlet of the CO₂ gas cylinder.
5. Remove EMPTY CO₂ gas cylinder.

To replace a CO₂ gas cylinder (Full):

1. Install FULL, replacement CO₂ gas cylinder in place of the removed EMPTY cylinder.
2. Check that head valve of replacement CO₂ gas cylinder is tightly CLOSED.
3. Remove outlet cap from outlet to the replacement CO₂ cylinder.
4. Install a new fiber washer and attach the CO₂ regulator coupling nut to the threaded outlet of the replacement CO₂ gas cylinder.
5. SLOWLY open the CO₂ gas cylinder head valve.

6. SLOWLY open the CO₂ regulator valve and observe increasing pressure on gauge, stopping at desired working high pressure: 80 to 120 PSIG.

7. Perform checks:

- a. CO₂ regulator coupling nut is tightly connected to CO₂ gas cylinder.
- b. New fiber washer used.
- c. Water back-pressure check valve is functioning properly.
- d. When in doubt, apply soap lather to check connections for gas leaks.
- e. If leak occurs at either end of a hose, first replace plastic washer. If leak still occurs, cut off the defective end and re-fasten hose with clamps. Otherwise, REPLACE HOSE.

Keep CO₂ gas supply ON at all times to ensure uniform well-carbonated water.

PO760 REMOVAL AND REPLACEMENT PROCEDURES

////////// WARNING //////////

Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

////////////////////////////////////

REMOVAL AND REPLACEMENT OF THE COMPRESSOR ASSEMBLY

To remove compressor refer to SLIDE-OUT CHASSIS PROCEDURE and remove chassis from cabinet.

1. Remove two screws and the cover from the compressor junction box.
2. Disconnect the electrical leads at the compressor junction box, that originate in the control box and fan motor.
3. Bleed off or blow the refrigerant charge through the Schrader valve.
4. Unsolder the suction line from the compressor.
5. Unsolder the discharge line from the compressor.
6. Unsolder the process header tube from the compressor and retain for installation on the replacement compressor.
7. Remove four bolts, lockwashers and washers which secure the compressor to the chassis mounting base.
8. Remove the compressor from the chassis.
9. To replace the compressor assembly, reverse the removal procedures.
10. When recharging the system with refrigerant, always check the nameplate for the specified refrigerant charge.

REMOVAL AND REPLACEMENT OF THE CONDENSER — AIR-COOLED MODELS

To remove the condenser refer to SLIDE OUT CHASSIS PROCEDURES and complete all steps.

1. Bleed off or blow the refrigerant charge through the Schrader valve.
2. Remove one screw and disconnect the drier brace and drier from the condenser shroud.
3. Unsolder and disconnect the condenser inlet tube at the condenser.
4. Unsolder and disconnect the condenser outlet tube at the condenser.
5. Remove three screws, lockwashers and washers securing the condenser to the chassis base.
6. Remove four screws and attach the control box to the condenser.
7. Remove the condenser from the chassis base.
8. To replace the condenser, reverse the removal procedure.
9. When recharging the system with refrigerant always check nameplate for the specified refrigerant charge.

REMOVAL AND REPLACEMENT OF THE CONDENSER — WATER-COOLED MODELS

To remove the water-cooled condenser:

1. Remove two screws and cabinet left front panel.
2. Bleed or blow the refrigerant charge through the Schrader valve.
3. Unsolder the refrigerant inlet and outlet lines from the condenser.
4. Disconnect the water inlet and outlet lines from the condenser.
5. Remove two bolts, lockwashers and washers which secure the condenser to the chassis mounting base.
6. Remove the condenser from the cabinet.
7. To replace the condenser, reverse the removal procedure.
8. When recharging the system with refrigerant always check nameplate for the specified refrigerant charge.

////////// NOTE //////////

Always install a replacement drier, anytime the sealed refrigeration system is opened. Do not replace the drier until all other repair or replacement has been completed.

Thoroughly evacuate the system to remove moisture and non-condensables.

PO760 REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE LIQUID LINE DRIER

To remove the drier refer to SLIDE OUT CHASSIS PROCEDURES and complete all steps.

1. Remove screw and drier brace attaching the drier to the condenser shroud on air-cooled models; and, the chassis base on water-cooled models.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder refrigerant lines at top and bottom of drier, remove the drier and separate the drier from the drier brace.

To replace the drier:

1. Remove the factory seals from the replacement drier and install the drier in the refrigerant lines with the arrow positioned in the direction of the refrigerant flow.

CAUTION

If the factory seal is broken on the replacement drier, exposing it to the atmosphere more than a few minutes, the drier will absorb moisture from atmosphere and lose substantial ability for moisture removal.

Be sure the replacement drier is installed with the arrow positioned in the direction of the refrigerant flow.



2. Install the drier brace on the drier.
3. Solder the drier into the lines, two places.
4. Purge the system and check for leaks.
5. Thoroughly evacuate the system to remove moisture and non-condensables.
6. Charge the system with refrigerant by weight SEE NAMEPLATE for specifications.
7. Leak test the system.

PO760 REMOVAL AND REPLACEMENT PROCEDURES

REMOVAL AND REPLACEMENT OF THE GEAR MOTOR

//////////////////// **WARNING** //////////////////////

Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

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To remove the gear motor refer to SLIDE OUT CHASSIS PROCEDURES and complete all steps.

To remove the auger drivemotor:

1. Disconnect electrical power leads from the motor.
2. Unscrew four capscrews securing motor to gearcase.
3. Lift off motor winding from the gear reducer.
4. Use a pry bar to remove rotor and rotor bearing from the gearcase.
5. Examine grease seal in gearcase. Replace if worn. Add grease to seal and bearing housing before re-assembly.

To replace, reverse the removal procedures.

NOTE

Motors must be exchanged complete. DO NOT mix rotors, housings or windings.

REMOVAL AND REPLACEMENT OF THE GEAR MOTOR ASSEMBLY

//////////////////// **WARNING** //////////////////////

Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

////////////////////////////////////

//////////////////// **CAUTION** //////////////////////

SHUT OFF water supply to icemaker.

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To remove the gear motor assembly:

1. Refer to Removal and Replacement of the Elbow & Switch Assembly and perform steps to gain access to the freezer assembly.
2. Thread suitable length bolts, having No. 5/16-18 UNC-2B threads, into thread hold in the top of the auger. Grasp bolt head with hand tool and pull auger out.
3. Unbolt freezer from gear motor assembly, lift up and off gear motor.
4. Remove the drivemotor cover and disconnect the three electrical wire leads.
5. Remove bolts holding gear motor plate to the machine base.

6. Lift the gear motor from the machine base. To replace the gear motor assembly, reverse the removal procedure.

*Torque bolts to 250-300 inch pounds.

REPAIR OF THE GEAR MOTOR ASSEMBLY

1. Remove (6) cap screws to prepare to open gearcase.
2. Pry the two cases apart. Inspect the internal parts, look for:
 - Condition and quality of lubricant. (The proper oil level is flush with the top of the output (biggest) gear.)
 - Gear and gear shaft condition
 - Woodruff key between output gear and shaft
 - Grease seals, back to back
 - Vent hole open
 - Thrust bearing intact.

Be sure to count and retain the spacer washers as they come out of the gearbox.

Replace the parts as required, using the part numbers found in the parts list section of this manual. Replace the gears into a CLEAN bottom gearcase, replacing the spacer washers in the same quantity as they were upon disassembly. If no count was kept, refer to the parts illustration.

NOTE: Some bearing grease should be placed in all bearings before assembly to insure proper lubrication upon start-up.

To reassemble:

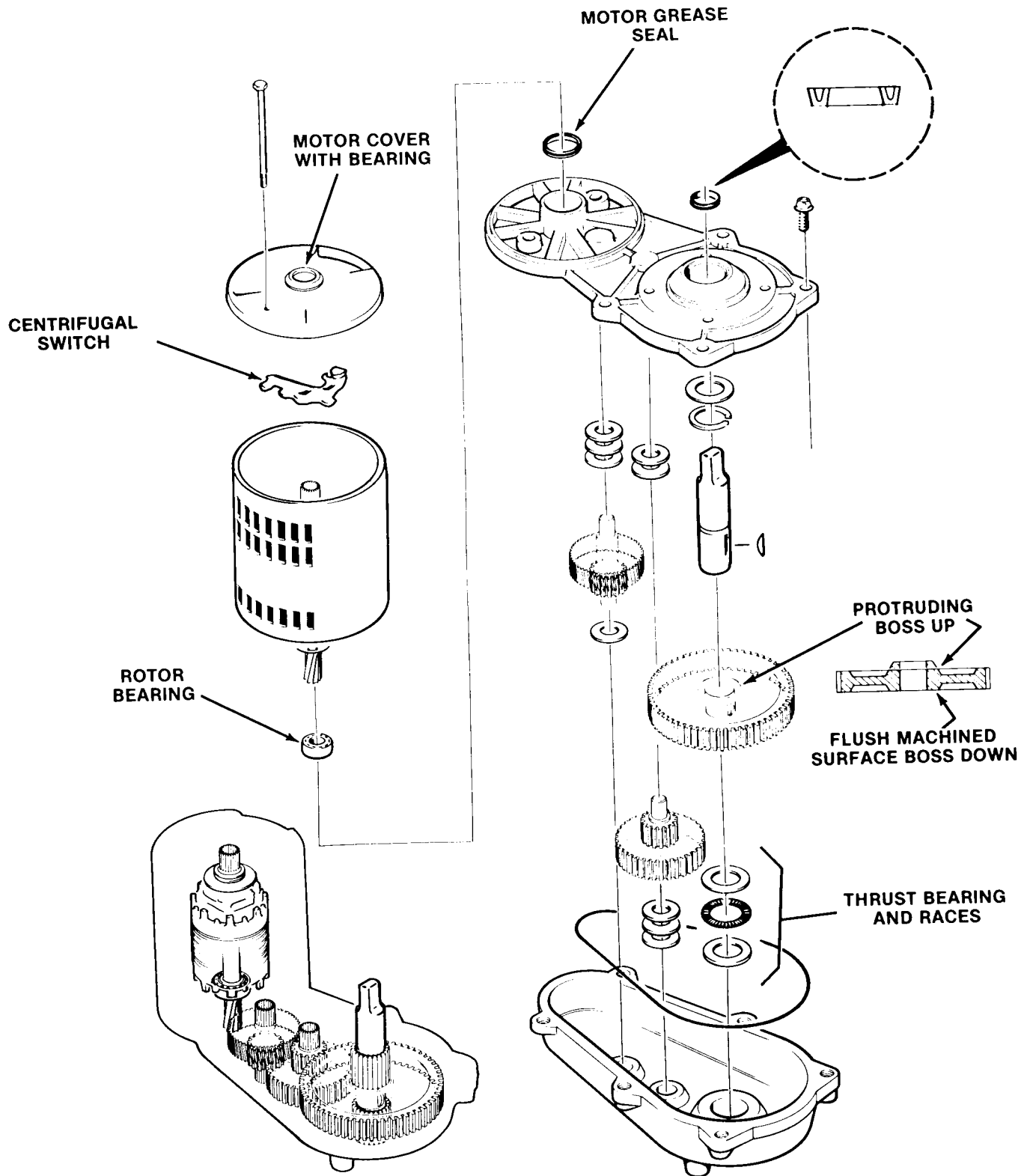
1. Set top gearcase on gears and spacers and oil. Output gear when installed must be assembled with the flush, machined side DOWN and the protruding bossed center UP. Be sure O-ring is in place.
2. Replace gearcase cover. Drive in alignment pins before tightening cap screws and torque at 250-300 inch pounds.
3. Bench test the gearmotor assembly.

Test for noise, amp draw (must not be in excess of icemaker nameplate for gearmotor) and oil leaks.

Return gearbox to the unit. Be certain all mounting surfaces are clean and reassemble gearbox to chassis and freezer assembly.

If the freezer water seal begins to leak, removal of the auger is required in order to replace the top bearing and water seal. AT THE SAME TIME, it would be recommended to remove the gearmotor assembly, open it up and inspect it.

PO760 REMOVAL AND REPLACEMENT PROCEDURES



PO760 REMOVAL AND REPLACEMENT PROCEDURES

////////// WARNING //////////

Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

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REMOVAL AND REPLACEMENT OF THE FAN MOTOR ASSEMBLY — AIR-COOLED MODELS

NOTE

Before beginning this procedure, observe the fan blade position on the shaft of the fan motor and mark the fan blades so it will be correctly positioned during reassembly. Direction of air flow should be toward the fan motor.

To remove the fan motor assembly:

1. Disconnect the electrical supply to the icemaker at the circuit breaker or fuse box.
2. Remove two screws and the lower left front panel.
3. Remove plastic trim, screws, and aluminum trim.
4. Remove screws and left front bracket. Remove upper front left panel.
5. Disconnect the electrical lead from the fan motor at the compressor control box.
6. Remove two screws securing the motor bracket to the chassis base and remove the fan motor and motor bracket from the chassis.
7. Remove the nut from the end of the fan motor shaft and remove the fan blade.
8. Remove four screws securing the fan motor to the motor bracket and separate the motor from the bracket.

To replace the fan motor assembly, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE WATER REGULATOR VALVE ASSEMBLY — WATER-COOLED MODELS

To remove the water regulator assembly refer to slide out chassis procedure and complete all steps.

1. Close the inlet water valve to the icemaker.
2. Bleed off or blow the refrigerant charge through the Schrader valve.
3. Unsolder capillary tube from the discharge line process header.
4. Disconnect the water inlet and outlet lines from the water regulator valve.
5. Remove the two screws from the valve bracket to the machine base and remove the water regulator valve.
6. To replace the water regulator assembly, reverse the removal procedure.

REMOVAL AND REPLACEMENT OF THE SAFETY CONTROLS, HIGH PRESSURE, LOW PRESSURE, AND AUGER DELAY

To remove the controls, refer to the slide-out chassis procedure and complete all steps.

1. Bleed off or blow the refrigerant charge through the Schrader valve.
2. Unsolder the control capillary tube from its corresponding process header.
3. Replace the control and solder the capillary tube to its corresponding process header.
4. Follow the Removal and Replacement Procedure of the liquid line drier.

////////// NOTE //////////

Always install a replacement drier, anytime the sealed refrigeration system is opened. Do not replace the drier until all other repair or replacement has been completed.

Thoroughly evacuate the system to remove moisture and non-condensables.

PO760 REMOVAL AND REPLACEMENT PROCEDURES

//////////////////// **WARNING** //////////////////////

Be sure the electrical power supply to the icemaker is OFF before proceeding with removal procedures.

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NOTE

Be prepared with container to catch water left in lines disconnected in next steps, to prevent draining water on parts, components, electrical lines, etc.

REMOVAL AND REPLACEMENT OF THE WATER RESERVOIR ASSEMBLY

To remove the water reservoir assembly refer to slide out chassis procedure and complete all steps.

1. Close the inlet water valve to the icemaker.
2. Disconnect the water inlet tube from the water reservoir assembly.
3. Remove two Corbin clamps and two tubes from the bottom of the water reservoir assembly.
4. Unscrew and remove the wing nut from the bottom of the water reservoir assembly.
5. Lift and remove the water reservoir assembly from the mounting bracket.

To replace the water reservoir assembly, reverse the removal procedure.

NOTE

Check that the installed replacement water reservoir assembly float moves freely. Bend metal arm of float to adjust, as necessary. The correct water level in the water reservoir is the point of the raised molded line, on the side of the body of the water reservoir.